Safety Maintenance

EST. 1901 • AMERICA'S PIONEER MAGAZINE IN ITS FIELD • FEBRUARY, 1957 • 50¢

Published By Alfred M. Best Company, Inc.

New Advanced Features Make AO Ultrascopic Safety Glasses A Better Buy Than Ever

When we introduced American Optical Ultrascopic Safety Glasses, we intended them to be the finest, most advanced eye protection equipment available. They were enthusiastically accepted by industry at all levels. A tremendous increase in eye protection sales attests to this success. They truly have been "a new dimension in eye protection."

However, in keeping with American Optical's policy of making good products even better, continual American Optical research and laboratory testing have developed many new improved features on American Optical Ultrascopic Safety Glasses. Now, with these advanced refinements, they are a better buy than ever.

New Wrap-Around Case No. 954 of Cordovan vinyl. Won't wrinkle, peel or crack.

American Optical Fits-On Goggles which protect Ultrascopic Safety Glasses from pitting and scratching.

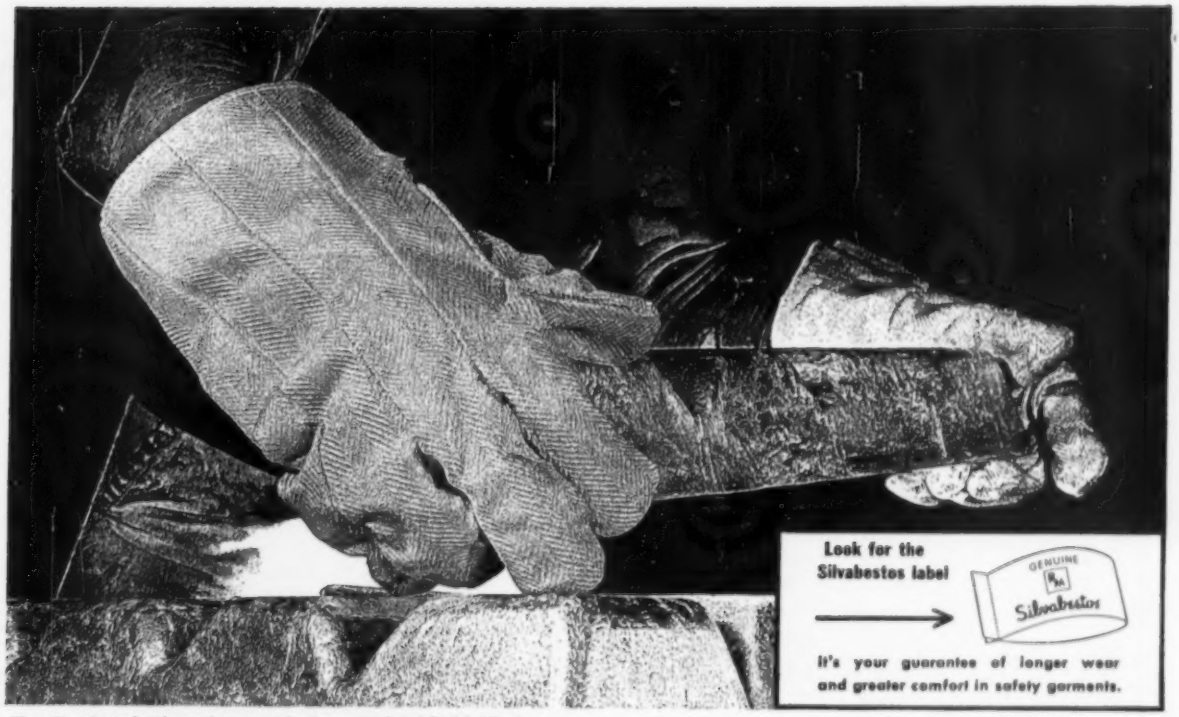
1. The F9500 Series in copper bronze. This handsome styling will appeal to all and to women workers in particular.
2. The F9500 Series with clear transparent side shields, thus increasing side vision.
3. Spatula tip temples for the F5100 Series without side shields.
4. The F9500 acetate Series is available with metal screen side shields. The F5100 metal series is available with all plastic perforated side shields.
5. Both series are available with 6 curve Plastolite (plastic) lenses.
6. New case with pocket clip (No. C954) and without pocket clip (No. 954) has been developed to accommodate either the metal or acetate goggle without side shields.
7. New Ultrascopic Fits-On Goggles. These are designed to fit either the F5100 or the F9500 Series with or without side shields. Glass or plastic lenses. Glass lenses clear and Calobar ground and polished Meniscus. Plastic lenses, clear or green meniscus. Model 21W for metal safety glasses, model 22W for acetate. 42-44-46-48 mm. eye sizes.
8. Both the F5100 and F9500 series are available with "Balanced Vision" in R$_x$ glasses. Workers who need correction are assured of balanced or "compensated" vision from lens edge to lens edge.

American Optical
COMPANY
SAFETY PRODUCTS DIVISION

Always insist on Trademarked Lenses and Frames. Your nearest American Optical Safety Products Representative can supply you.

SOUTHBRIDGE, MASS., BRANCHES IN PRINCIPAL CITIES

(For details, use Key # A-1 on card on page 35)



Handling hot aluminum ingots with gloves made of R/M Silvabestos.

AMAZING NEW R/M Silvabestos® CLOTHS . . .

for lighter, longer-wearing safety garments

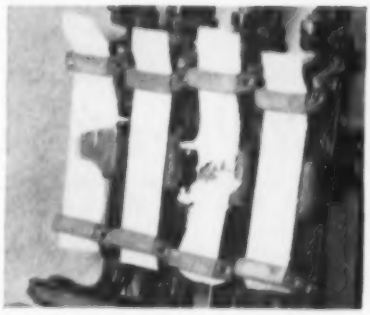
R/M's revolutionary new Silvabestos coated cloths make it possible for safety garment manufacturers to materially reduce the weight of asbestos safety clothing and still afford superior protection to the wearer. Not only is clothing made from Silvabestos more comfortable and less fatiguing to wear, but it far outlasts that using uncoated cloths of comparable weight.

For example, on the Wyzenbeck Wear Tester, widely used to test the wearing qualities of upholstery fabrics and carpets, R/M Silvabestos coated cloths are shown to offer resistance to destruction 39 to 249% greater than that of the same cloths uncoated. The same favorable comparison is revealed by the Abradoflex Tester, which simulates normal wearing conditions.

Silvabestos cloths demonstrate markedly superior resistance to heat degradation. After exposure to a temperature of 450°F. for one hour in a muffle furnace, the residual tensile of the Silvabestos cloths is 27 to 56% greater than that of the same fabrics uncoated.

The desirable qualities of Silvabestos are the result of an aluminum-resin coating applied by an original R/M process. Silvabestos should not be used in contact with open flame. It has only moderate reflectivity and should not be offered as a substitute for Minnesota Mining's mirror-bright aluminum finish. Complete Wyzenbeck, Abradoflex, and heat resistance test data will be furnished on request.

Raybestos-Manhattan does not make safety garments—only the cloth for fabricating them. Send for list of leading manufacturers making safety clothing from genuine R/M Silvabestos.



Wyzenbeck Wear Tester measures wear resistance of fabrics by holding them against an oscillating abrasive drum. In this picture the test was stopped before completion in order to reveal that the first and third strips (uncoated base cloth) had reached the point of destruction while the second and fourth (Silvabestos) still showed no discernible wear.

R/M

RAYBESTOS-MANHATTAN, INC.

ASBESTOS TEXTILE DIVISION, MANHEIM, PA.

FACTORIES: Manheim, Pa.; Bridgeport, Conn.; No. Charleston, S.C.; Passaic, N.J.; Neenah, Wis.; Crawfordsville, Ind.; Peterborough, Ontario, Canada

RAYBESTOS-MANHATTAN, INC., Asbestos Textiles • Laundry Pads and Covers • Mechanical Packings • Brake Linings • Brake Blocks • Clutch Facings • Rubber Covered Equipment • Industrial Rubber • Engineered Plastics • Sintered Metal Products • Industrial Adhesives • Abrasive and Diamond Wheels • Bowling Balls

(For details, use Key # A-2 on card on page 35)

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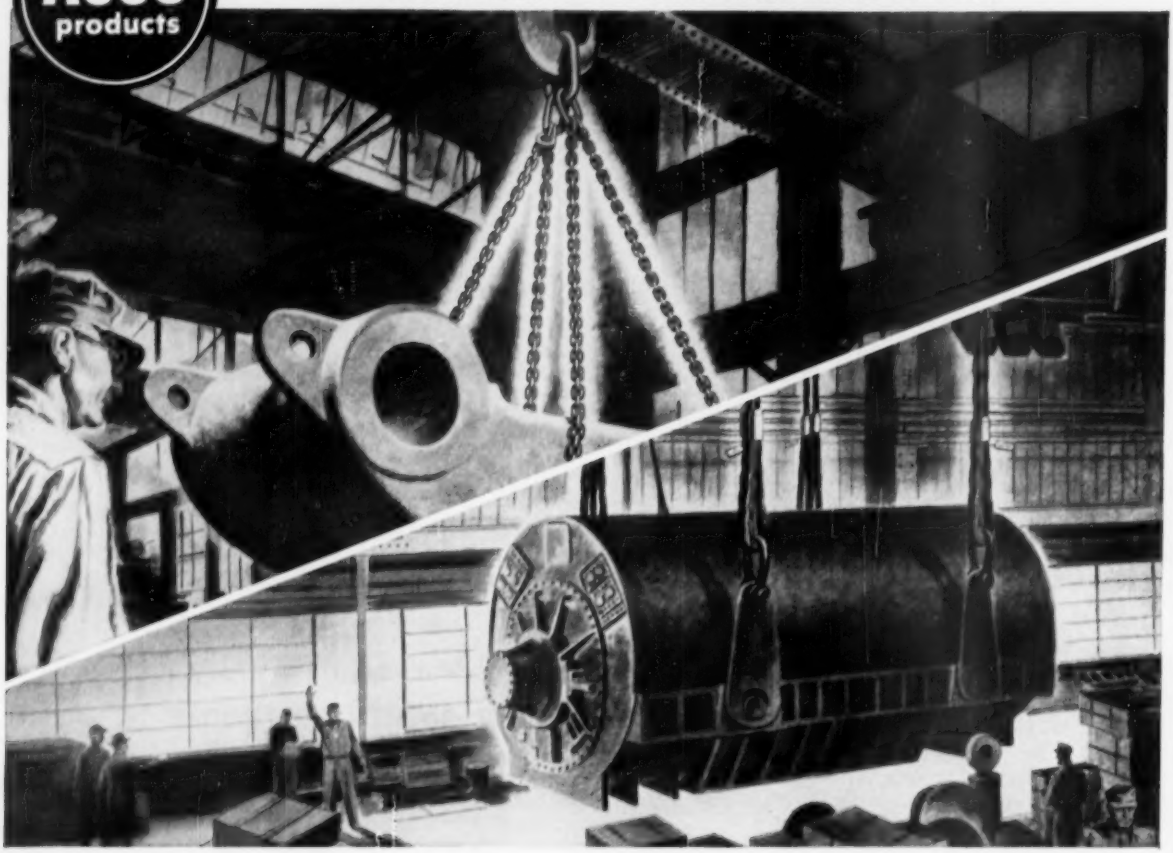
Acco Registered* Slings–Wire Rope & Chain

THE STANDARD OF EFFICIENCY AND SAFETY



Why Acco *Registered* Slings are the Safest Slings Made

• Your job may demand Chain Slings, Wire Rope Slings—or a combination of both. Temperature, shape or weight of a load, protruding corners and many other factors tend to make one particular sling best for a particular application. But no matter what your requirements, ACCO has the right sling in its complete line of ACCO *Registered* Wire Rope & Chain Slings.

And with an ACCO *Registered* Sling you get the extra protection of the ACCO *Registered* program—extra safeguards which make ACCO *Registered* Slings the safest slings made.

Individually Proof-Tested • Each component of an ACCO *Registered* Sling is first tested to insure that it has strength at least equal to the sling body. All hooks for ACCO *Registered* Slings are Magnaflux tested. Then the slings are assembled according to carefully engineered designs which have proven their safety and effectiveness in extensive laboratory tests and field applications. The completed slings are then individually proof-tested at a load at least twice that for which the sling is rated.

Only after a sling has passed these rigorous tests is it registered. And this ACCO Registration is attested by a certificate and a ring or tag which are attached to the sling and accompany it to the user as his warranty of superior quality and safety.

New, Safer Master Link • Over the years ACCO has maintained a continuing research program to build more and more safety and quality into ACCO *Registered* Slings. The latest result of this research is a new and better master link for both chain and wire rope slings.

ACCO's engineers found that by shaping the master link in a particular fashion they could make it stand up under loads up to 18% greater than could standard round sections. You now get this new, stronger master link on all ACCO *Registered* Slings at no increase in price—together with the many other improvements developed by ACCO research over the years.

At Your Distributor • ACCO *Registered* Slings—Chain, Wire Rope or combination—are readily available from a distributor near you. Call him today for an extra bonus of safety in your lifting operations. If you don't know his name, write to our Bridgeport office.

*Trade Mark Registered

ACCO

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Better Value

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Safety Maintenance

formerly "SAFETY ENGINEERING"

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AMERICA'S PIONEER MAGAZINE IN ITS FIELD

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it's SAFE to say

● CATCH 'EM YOUNG

FOR good and sufficient reasons, this country is in dire need of more technically trained employees in heavy industry. We know that there is a dearth of scientists and engineers who must be depended upon to help guard our national security in succeeding generations. Moreover, we are confronted with international technical competition and therefore too heavy emphasis upon the liberal arts is not only short-sighted but actually could be dangerous.

One of the prime factors leading to victory in World War II was American production. In fact, it is this American know-how and vast industrial output which can keep us out of any possible World War III, but it would be naive to believe that others never can catch up with our productive efficiency. Particularly is this true if we falter in our worthy goal of staying ahead.

In consequence, we must catch them young and train vast numbers of those young men and women to take their place in industry's ceaseless struggle to foresee, design and produce new equipment and improve existing products.

The vocational schools, particularly in the larger cities of the country, are doing splendid work in fitting teen-agers to enter the ranks of industry. However in too many localities, the schools not only are missing an opportunity but actually are fouling up their own efforts by minimizing or even ignoring the benefits of accident prevention.

The educators often are not entirely to blame. In too many instances, they themselves have not been properly indoctrinated or have been victims of budgetary anemia which manifests itself by the complaint of "we cannot afford it." The result is that in some vocational schools, we know there exists a safety problem that private industry would not be permitted to tolerate. If the same lack of interest in accident prevention existed in a plant, a community howl would go up charging management with everything from callous indifference to criminal negligence. But we will expose our youth to shop and laboratory hazards where there is not even the saving grace of workmen's compensation regulations to help prevent an accident.

Many schools are in the forefront of the safety movement; heads of departments, instructors and students are sent to important safety conventions for guidance and there is a whole-hearted attempt to make accident prevention a part of the curricula. Nevertheless, the job of inculcating safety from the top down is woefully neglected and vocational school youngsters thus become victims of needless and entirely preventable accidents.

It is now time to educate the educators. Otherwise it would seem that industry itself must accept its share of any blame arising from accidents in vocational schools. It behooves management therefore to take a greater interest in school shop safety, if only for selfish reasons: plants are screaming for qualified workers; public taxes are needed for the support of those technical schools, and even uncompensated accidents must be paid for by someone—generally by the community itself.

Vocational school teachers, who may be culled from an industrial plant indifferent to accident prevention programs, can be hazards in themselves. They go into a school free to perpetuate their shoddy, sloppy or even non-existent safety practices. Others will come from teacher institutions where only the curriculum is emphasized. The latter type of instructor lives entirely in an academic dream world. He would not be so completely insulated if parents knew to what extent their sons were exposed to accidents caused by lack of personal protective devices.

Industry has a distinct obligation to penetrate this wall of official silence. The parental cry of anguish should be heard throughout the land *before* an accident, not after a youngster is blinded in a school shop or Chemistry Lab. H.A.

NOW...you can have the NEW LOOK*

in ACETATE Safety Glasses, too!

* **New S-7 Bal-SAFE lens shape . . . for wider field of vision, better eye coverage, smarter appearance.**

Y-60

Last year Bausch & Lomb introduced Titan, bringing the "new look" to quality safety eyewear. Titan is a combination metal-plastic frame of remarkable strength and outstanding appearance, winning instant worker acceptance.

Now comes an all-plastic companion frame. Y-60 (solid nose pads) and Y-61 (adjustable pads) are made from finest quality uniform texture sheet acetate. With the outstanding new S-7 lens shape . . . with exclusive strength features in bridge, temple and endpiece areas . . . you'll want Y-60 and Y-61 frames in all proper applications in your plant immediately.

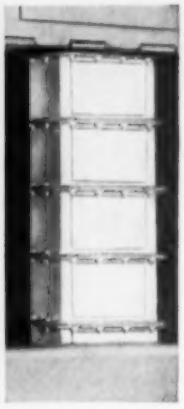
For complete information, write today for Booklet A-1458. If you don't already have it, ask for the details on Titan, too: Booklet A-1493. Bausch & Lomb Optical Co., 90514 Smith St. Rochester 2, New York.

BAUSCH & LOMB

Y-61

(For details, use Key # A-4 on card on page 35)

Gasoline and LP Gas
FUMES ARE POISON



Stop them quickly, effectively, at low cost with OCM® CATALYTIC EXHAUST PURIFIERS

STOP DEADLY CARBON MONOXIDE. OCM Catalytic Exhausts eliminate 95% or more of CO—90% of harmful, irritating hydrocarbons and other engine exhaust fumes and odors—from any type of equipment burning gasoline *or LP gas*.

INCREASE EMPLOYEE EFFICIENCY AND MORALE. Fume-caused headaches, grogginess, eye irritation, and nausea cost you money—in production slow-downs, lowered work level.

MAKE PRESENT EQUIPMENT MORE PRODUCTIVE. With OCM Exhaust Purifiers, you can run lift trucks, bulk-handling trucks, floor scrubbers, construction machinery, and other equipment continuously, *safely*, efficiently, even in closely confined areas.

EASY TO INSTALL. OCM Exhaust Purifiers can be easily installed on your present equipment without changing clearances. They take the place of the standard muffler. Need little or no maintenance.

LONG LIFE—LOW-COST REPLACEMENT. Up to 2000-2500 hours in normal use—in some cases 4000 and more. Only the catalytic unit needs replacing—simple, economical to do.

STOP DIESEL EXHAUST FUMES. OCM Dieseler controls harmful, irritating exhaust from any *4-cycle diesel* when running at or over 60% load.

OCM Catalytic Exhaust Purifiers are the best way—the *only* way—to good fume elimination, even when using LP gas. Write now for complete information and name of your local representative.

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WAYNE, PA., U.S.A.

Catalysts for fume and odor elimination, air pollution control, and waste heat recovery

OXY-CATALYST, INC., Wayne 9, Pa.

Please send complete information on:

☐ OCM Exhaust for gasoline and LP engines ☐ OCM Dieseler for 4-cycle diesel engines ☐ Send name of local representative

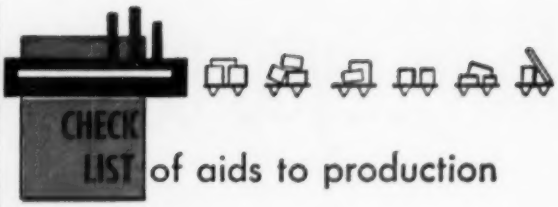
Name_____

Firm_____

Street_____

City_____ Zone_____ State_____

(For details, use Key # A-5 on card on page 35)



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MAGIC

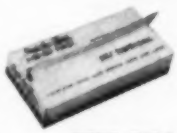
MAGIC® SILICONE LENS TISSUE, *America's leading eye-aid for safety.* Wearing protective eyewear in American industrial plants saved the vision of an estimated 10,000 workers in the past ten years. MAGIC has had an important part in this wonderful achievement. It is the only first-class sheet of Silicone-treated tissue made in the United States; a marvel of the paper-makers art; the finest quality to be found in the world. Each sheet is over 50% larger than usual, and has twice the tearing strength. Yet because of our volume our tissue costs you less. Deposits a protective film of sparkling Silicone on the lenses. Polishes and protects as it cleans instantly. Compact steel Dispenser has no bothersome lever or any moving parts. Self-mounting—just stick it to the wall. Tissue (6 refills) $8.40 per carton; Dispenser $2.50 each, or free when exchanged for any other cleaning stations.

means more safety

MAGIC HEAVY-DUTY cleaning station for grimy, oily, areas where washing with a fluid is unavoidable, or where Anti-Fogging treatment is required. Use on plastics or any eyewear. MAGIC Cleaning and Anti-Fogging Fluid is combined in one can, *pressure-packed.* Touch the top and Presto! the can does the rest. 12 12-oz. cans per carton $12.50. About 1400 applications per can. Or, if you wish to use your own home made fluid, we can supply our adapter ($2.70) with a giant 16 oz. bottle and plunger complete. The Heavy-Duty Paper is our superb, super-strong, wet-strength sheet. Naturally, no scratching on plastic, and no lint. 18 big 760-sheet refills per carton at only $11.60. Indestructible steel Dispenser ($5.95) releases these interfolded sheets one-by-one, not in bunches, greatly reducing waste. Go Modern, Buy MAGIC. All prices F.O.B. shipping point. Order Now! Exchange all your other stations for Magic FREE. Wire or write us or your safety jobber today.

for less money

MAGIC Pop-Up Pack in self dispensing box for your desk or any place in the office, plant or laboratory, $11.95 per carton of twelve Boxes.



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75 East 45th St., New York 17, N. Y.
SERVING EVERY MAJOR INDUSTRY IN AMERICA

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T.M. REG. U.S. PAT. OFF.
Cleaning Stations

(For details, use Key # A-6 on card on page 35)

A break
for men who wear hoods!

New Bullard abrasive blasting helmets and lead discing helmets are extra lightweight. Wear them for hours without fatigue. Protection from overhead hazards is afforded by a "HARD BOILED" aluminum hat used as a headpiece.

Wearer has clear, wide angle visibility through large hinged plastic face piece. To diminish abrasive pitting, perforated metal screen slides over face piece.

Cape is lightweight, double coated plastic with dust-proof self adjusting inner neckband.

USE CLEAN MOISTURE-FREE AIR

Wherever compressed air is used in helmets, tools or painting, a Bullard purifier hooked into the system dries and cleans air from compressor — protecting men and materials.

Write for catalog and specifications of Bullard protective hoods and air purifying equipment.

E. D. BULLARD COMPANY, Sausalito, California

BULLARD
INDUSTRIAL SAFETY EQUIPMENT

(Use Key # A-7 on Inquiry Card on page 35)

THE FUTURE SHOWS

Los Angeles, Calif. *February 7–8*

Seventh Annual California Statewide Meeting of the Governor's Industrial Safety Conference (Biltmore Hotel). Div. of Industrial Safety, Calif. Dept. of Industrial Relations, 965 Mission St., San Francisco 3, Calif.

Richmond, Va. *March 3–5*

Southern Safety Conference & Exposition (John Marshall Hotel). W. L. Groth, Executive Director, P. O. Box 8927, Richmond 25, Va.

Philadelphia, Pa. *March 13–14*

Twenty-Third Annual Philadelphia Safety & Fire Conference and Exhibit (Bellevue-Stratford Hotel). Harry H. Verdier, Manager, Philadelphia Safety Council, c/o Chamber of Commerce, 121 S. Broad St., Philadelphia 7, Pa.

New York, N. Y. *March 18–22*

Twenty-Seventh Annual Greater New York Safety Convention and Exposition (Hotel Statler). Carl F. Olander, General Chairman, Greater New York Safety Council, 60 E. 42nd St., New York 17, N. Y.

Boston, Mass. *March 18–19*

Thirty-Sixth Annual Massachusetts Safety Conference (Hotel Statler). Bruce Campbell, Manager, Massachusetts Safety Council, 31 State St., Boston 9, Mass.

Los Angeles, Calif. *March 18-20*

Fourth Annual Greater Los Angeles Safety Congress & Exhibit (Ambassador Hotel). Los Angeles Safety Council, Room 496, 610 S. Main St., Los Angeles 14, Calif.

Fort Wayne, Ind. *March 19–20*

Fourteenth Annual Northeastern Indiana Safety Conference and Exposition (Chamber of Commerce Building). Ivan A. Martin, manager, Safety Council, Ft. Wayne Chamber of Commerce, Ft. Wayne 2, Ind.

Pittsburgh, Pa. *April 2–4*

Thirty-second Western Pennsylvania Safety Engineering Conference & Exhibit (Sheraton Hotel). Harry W. Brainerd, executive manager, Western Penn. Safety Council, Inc., 605 Park Bldg., Pittsburgh 22, Pa.

Gainesville, Fla. *April 3–5*

Fourth Annual Conference on Accident Prevention Engineering (University of Florida Campus). Donald B. Wilcox, Conference Coordinator, College of Engineering, Gainesville, Fla.

Columbus, Ohio *April 9–11*

Twenty-Seventh All Ohio Safety Congress & Exhibit (Deshler Hilton Hotel). A. W. Moon, Congress Manager, Rm. 611, Ohio Departments Bldg., Columbus 15, Ohio.

Kansas City, Mo. *April 11–12*

Central States Safety Congress (Hotel President). G. M. Burns, director, Kansas City Safety Council, 419 Dwight Bldg., Kansas City

Syracuse, N. Y. *April 29–May 1*

Fifth Central New York Safety Conference & Exposition. Safety Division, Syracuse Chamber of Commerce, 351 South Warren St., Syracuse 2, N. Y.

Bethlehem, Pa. *May 6–8*

Thirtieth Annual Eastern Pennsylvania Safety Conference, Harold A. Seward, Secretary-Treasurer, Lehigh Valley Safety Council, 602 E. Third St., Bethlehem, Pa.

Niagara Falls, N. Y. *May 8–9*

Seventeenth Western New York Safety Conference, in co-operation with the American Society of Safety Engineers (Niagara Hotel). Patsy E. Gismondi, Executive Secretary, 1436 Delaware Ave., Buffalo 9, N. Y.

can VIBRATION MEASUREMENTS Help You ?

MARINE ENGINE MEASUREMENTS — PHOTO COURTESY GENERAL METALS CORPORATION

Vibrations cause discomfort and fatigue and, in extreme cases, can bring about actual failure of structural materials. Conversely, they are helpful too, making possible vibrating systems such as the electro-dynamic shaker for testing components and equipment. Whether wanted or unwanted, vibrations must be measured to obtain a thorough understanding of their characteristics and potentialities. Such measurements are accomplished accurately and with ease and rapidity by the G-R Vibration Meter and Vibration Analyzer.

The Vibration Meter measures motion directly in terms of its displacement, velocity, and acceleration. The piezoelectric type of pickup used permits a frequency range of 2 to 1000 cps (120 to 60,000 rpm), covering the spectrum in which vibrations are most often encountered. The instrument is mounted in a portable case, operates from an internal battery, and is simple and easy to use.

The Vibration Analyzer is a continuous spectrum instrument, invaluable for determining the contribution made by specific frequencies to the over-all disturbance. "Broad" and "Sharp" bandwidths are provided for either scanning or for detailed measurements over the range from 2.5 to 750 cps (150 to 45,000 rpm). The complete analysis made possible by this instrument provides the clues to the sources of the various components and gives information necessary for the suppression of the vibration.

. . . They Helped Here!

- ✔ The Vibration Meter is widely used for evaluating the effectiveness of shock and vibration mounts and cushioning for high-speed automatic machinery.
- ✔ A tire manufacturer uses this measuring equipment to determine accurately the amount of vibration absorbed by auto tires.
- ✔ Resonant vibrations in large engine foundations have been analyzed with success. The frequency spectrum of the disturbance gives a most helpful indication of the offending gear, pinion, or other part.
- ✔ Field measurements on marine and stationary engine installations are extremely valuable safety measures; they help predict troubles brought about by excessive torsional vibrations.
- ✔ Ball bearing manufacturers rely on vibration measurements to test the finished product as it comes off the production lines.
- ✔ Noise levels of several popular fans and air circulators have been reduced to acceptable levels through vibration study.
- ✔ Measurements on newly completed vehicles, ships, and large fixed structures are necessary to check design calculations.
- ✔ Excessive building vibrations produced by engine and heavy-machinery operations on upper floors have been reduced as a direct result of investigations conducted with the G-R Vibration Meter and Analyzer.
- ✔ Rotational vibrations of electrical machines and generators can be determined with the aid of two vibration pickups and a simple summing circuit which feeds the Vibration Meter.

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Many of the applications briefly described above are discussed in detail in the G-R Handbook of Noise and Vibration Measurement. This comprehensive publication of well over 160 pages thoroughly covers the subjects of noise and vibration measurements; it describes standard measuring equipment and techniques, and gives definitions and procedures for interpreting results. The booklet is available from the General Radio Company at a cost of $1.00 to cover printing and mailing charges only.

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Safety glasses are a requirement in certain buildings. Signs, like the one above, are strategically located as a reminder to employees going to those buildings to wear their glasses.

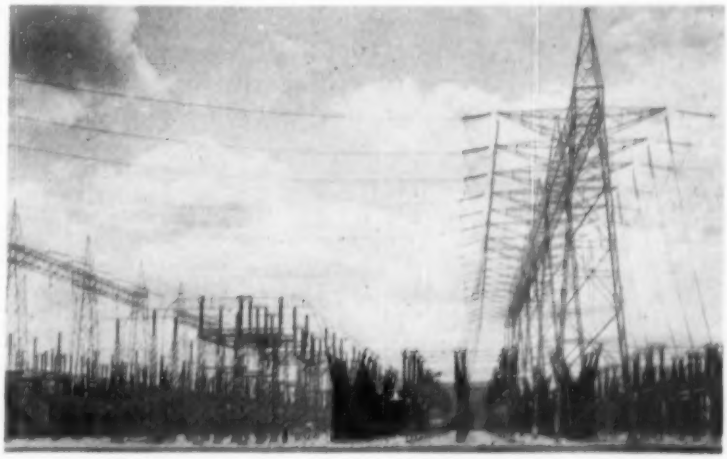
ENGINEERING OPENS THE DOOR TO SAFETY

An engineering approach has been used by the Goodyear Atomic Corporation to develop a complete safety program at the nation's newest uranium separation facility—the Atomic Energy Commission's Portsmouth (Ohio) Area Plant. Plant operation is concerned with separating Uranium-235 from Uranium-238 by the gaseous diffusion process.

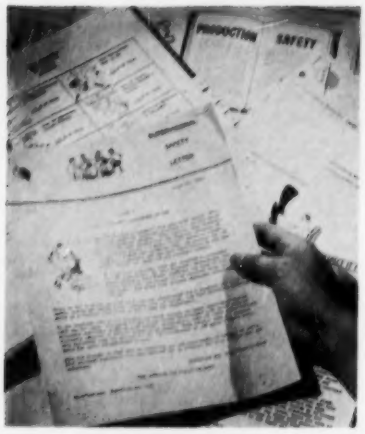
Everything at the plant—from chemicals to shoes, from eye glasses to motor vehicles, from chain falls to bridge cranes—is covered by the program. It doesn't matter whether it is small or large, expensive or inexpensive, anything that could cause an accident receives careful scrutiny and serious consideration.

The safety engineering program includes a complete safety analysis of every building; writing safe practice specifications; formulating plans to record and catalogue all accidents; and the assignment of safety men to each shift. The shift safety men were on permanent assignment until steady-state operations were reached.

The safety program receives very strong support from top management which flatly states that safety is an inescapable responsi-



Electrical safety is of major importance at the Portsmouth Area Plant. A general view of a plant switchyard is shown above.



Safety letters and other promotional material are used widely by Goodyear Atomic Corporation to make employees safety minded.

bility of all levels of supervision including top management.

The above, in brief, is the safety program at the Portsmouth Area Atomic Energy Installation, which is operated for the AEC by the Goodyear Atomic Corporation.

The program has been highly successful in the four-year period in which the company has been in existence. Twice in the four-year period of operation employees have worked over 1½ million manhours without a disabling injury and twice the 3,000,000 manhour figure has been exceeded. Goodyear Atomic also holds the record for the longest number of accident-free manhours worked of any of the nation's three gaseous diffusion plants.

Its success is illustrated in the extremely low frequency rate for 1955 of 0.88 and a severity rate of 61.44.

"Our program has to be complete," said Howard L. Caterson, superintendent, industrial engineering, "if we are to make this a safe place for our employees to work." Safety is a part of Mr. Caterson's subdivision.

C. L. Stewart, supervisor of the safety and fire protection engineering department, said it is good sense to have a complete program to protect employees and the $800,000,000 invested in the plant.

To insure adequate protection an expenditure of a considerable sum has been made for fixed fire protection equipment, protective clothing and equipment, and on portable radiation detection equipment. Safety is concerned with a multitude of problems. The plant most closely approximates a chemical operation, but take a look at the immense power consumed.

- Power lines carrying 330,000 volts, one of the highest transmission voltages in the world, supply the plant power demand of over 2,000 megawatts.
- The chemical hazards—connected with hydrogen fluoride, fluorine, uranium, and acids—have to be carefully controlled.
- The mechanical hazards—elevators, cranes, and a fleet of over 300 vehicles—must be considered.
- General fields of safety—compressed gas cylinders, ladder safety, and the like—also must be given careful thought.
- Plant processing of uranium includes a moderate amount of radiation. But experience to date has shown that this can be kept in check through the cooperative efforts of plants supervision and the health physics department.

Goodyear Atomic's management realizes the complexity of the hazards that exist in a gaseous diffusion plant and has given its support to the safety program from the very beginning in 1952 when the Atomic Energy Commission announced that The Goodyear Tire & Rubber Company would operate the huge uranium separation plant which was to be built on 3,700 acres of land in Southern Ohio.

Safety Training

Goodyear Atomic, in those early stages, shuttled its primary personnel between Portsmouth and the two other AEC gaseous diffusion plants—Oak Ridge, Tennessee, and Paducah, Kentucky—to learn the process. Safety was an integral part of that education.

The safety consciousness of those very early days was carried into GAT's training program. Every process operator and maintenance man who went through the training program, about 1,400 of them, received courses in the proper use of protective equipment, the procedure for handling hazardous work permits, first aid, etc.

It was during this early period that the engineering approach to safety was formulated. Mr. Caterson gives credit to Howard L. Scott, GAT's first supervisor of safety, who now is with Kaiser Aluminum in New Orleans, as the man most responsible for developing the program. "From his wide experience and training he was able to create a sound program," he said. Scott was one of the first to receive a master's degree in industrial engi-

Radiation instruments are checked in the "deep well" to make certain they are accurate. A calibrated radium source is placed in the well and the instruments are checked together, thus insuring the accuracy of the instruments for use by Safety Personnel.

neering with a major in safety from the Ohio State University Graduate School.

As plant units were completed by Peter Kiewit Sons' Company, the prime construction contractor, they were turned over to Goodyear Atomic and placed in operation.

Hazard Investigation: A complete study was made of every building to determine what safety problems existed and what safeguards were needed to insure safe operations. The comprehensive report of these investigations showed what hazards employees were likely to run into and how to cope with them. For hazards which couldn't be eliminated or minimized, the reports listed proper operating procedures and the safety equipment necessary for safe operation.

A priority system was set up whereby the problems were eliminated in relation to estimated degree of severity. The more serious problems were eliminated first, with the lesser problems receiving the lower priority. It was necessary to accept the fact that everything couldn't be handled immediately.

Accident Analysis: Collecting and analyzing injury statistics is another phase of the safety engineering program. Accident reports are filled out by the foremen, then analyzed and classified by safety engineers. The information is placed on IBM cards, classified, and recapped periodically to detect any possible trends.

The safety department has a double check on supervision to assume knowledge of all accidents. When an employee is injured and visits the hospital, a hospital visit form is filled out, the hospital or first-aid station records the employee's visit, and a duplicate of the hospital report is sent to Safety.

This complete accident classification program shows where the injury occurred, the time, the cause, evaluation of the human factor, and other pertinent data. Trends, if there are any, can be detected when cards are run through the IBM machines.

"After all," Mr. Caterson emphasizes, "you can't correct unsafe conditions or acts unless you have specific information on their existence."

Safety Men on the Job: To further develop the program in those beginning days safety men were assigned to the shifts. They helped out in safety meetings, were on the lookout for unsafe conditions, and worked closely with supervision to develop the desired appreciation for hazards and safe working habits on the part of every employee.

To develop the desired attitude the safety department used the "weapon" of the written word in the form of weekly reports distributed to plant supervision.

The weekly shift safety reports were published for only six months but in that time they accomplished the desired results. The reports included recommendations for safe operations as well as listing major unsafe acts committed, conditions discovered, and departments responsible. It didn't take long for a situation to be corrected when top management, informed by the weekly shift safety report, made inquiries. An early safety policy

(Continued on page 47)

Goodyear Atomic's largest safety sign, above, holds safety slogan and shows, on the barometer type indicator at right, the number of manhours employees have worked without a disabling injury. When an accident does occur the cause is stated on the board.

A member of the safety department demonstrated types of gloves that are needed on the various jobs. A partial list of safety equipment furnished by the company is on the display board in the background.

by **JOSEPH de FEHER**

Good care and constant servicing as recommended by the manufacturers are necessary to maintain power hand tools at the high degree of efficiency built into them. Power hand tools of today are light in weight, with a lot of power packed into a small space. They should never be abused through careless handling, lack of proper lubrication, overloading or other abuse, any of which can quickly damage them and shorten their efficient performance and useful life.

Electric Power Hand Tools

Portable electric hand tools will give years of reliable service with a minimum of maintenance if handled with reasonable care. Careless handling will not only reduce their useful life but damage and ruin them so that expensive repairs will be necessary to put them back into service.

Power Supply. Check the motor specifications with the voltage of the supply line. If the tool labors, if it runs at a reduced speed, or if it heats up because it is operating on a low voltage, report such conditions to the power supervisor or the power company at once. Otherwise variations in the voltage will cause serious damage to the tool. Similar trouble will be encountered, of course, if the motor is operated at too high a speed caused by too high a voltage. Therefore, it is best not to plug the tool in if the voltages of the power supply and that indicated on the tool do not correspond.

Commutator and Brushes. If periodic inspection reveals any grease or dirt on the commutator or the brushes, this should be cleaned off. If the commutators are found to be rough, they should be smoothed with a fine grade of sandpaper and never with emery cloth. When the grooves become worn, place armature in a lathe and turn down the commutator at high speed to a smooth surface. Total eccentricity should not exceed .001 inch. Before replacing the commutator in the motor, check all soldered connections to the armature.

EXCESSIVE SPARKING AT THE BRUSHES: The tool should be carefully examined since there are a variety of causes for the real source of this trouble. It may be due to dirty or greasy commutator; loose, broken, worn-out or wrong-size brushes; tight brushes, uneven seating of the brushes, weak brush springs, loose connections in the motor and field assembly, uneven commutator wear, worn or damaged bearings, or just simple overloading of the machine.

Watch out especially for badly worn brushes. Remove all brushes periodically to check for wear. Reject them if and when the carbon has worn to ¼ inch. When installing new brushes, make certain that they move freely in the brush holders. To check this, grasp the rear end of the brush spring between the forefinger and thumb, insert the carbon in the brush holder and slide it in and out. If the brush does not slide in and out freely, examine holder for burrs or other irregularities. If any major repairs are needed, the tool should be returned to the nearest repair shop of the manufacturer for complete overhauling. Even minor repairs should be performed only by skilled mechanics. Inexperienced servicing may not only be costly but also may void the guarantees offered by the tool makers.

Cleaning and Lubrication. Portable electric tools should be taken apart and cleaned as often as usage demands. Oil, grease and dirt from surrounding air and from the bearings, or carbon and copper dust from the commutator and brushes, will in time accumulate on the stator, brush plates and switch parts. These should be thoroughly and frequently cleaned to prevent a breakdown of the insulation or excessive wear.

Correct and adequate lubrication is the most important single factor in prolonging the life and service of portable electric tools. Lubricate according to charts furnished by the tool maker, using the type of oil recommended. Heavy duty tools require frequent lubrication to protect bearings from excessive wear. The gear boxes should be cleaned out only with the recommended solutions and refilled only with the lubricant suggested by the maker of the power tool. Watch closely the amount of grease packed, because if there is too much grease in the box and it becomes overheated, it expands and finds its way through the bearings to the motor winding and causes serious damage. Of course, the closed type, permanently-sealed-and-lubricated ball bearings need no lubrication. Never immerse sealed type bearings in a solvent for cleaning purposes, since this dilutes the lubricant.

Chucking. Be sure to insert shank tools in the chuck to the full length of the shaft to insure proper grip, to effect correct centering and also to prevent undue strain on the chuck jaws. Otherwise the tool will wobble and produce inaccurate work. In addition, it will place unnecessary strain on the chuck, score the shank of the tool, or even break it. Do not abuse the chuck by adjusting the jaws with pliers, wrenches, screwdrivers or any tool other than the chuck key.

Ventilation. Electric motors are air cooled and depend on a constant and abundant circulation of air for cooling. Keep the ventilating system open at all times. A recommended method is to blow compressed air through the slots while the motor is running. If this is done as often as should be, one frequent cause of grounding and damaging the motor and bearings will be eliminated. Be sure that the air blown in is clean and dry.

Grounding. All grounding devices should be properly installed. Shorts occur mostly in tools operating near moist dust or in damp surroundings, so be sure to use the third, or green, grounding wire to prevent shocks.

Stalling. Do not try to start a stalled motor by turning the switch off and on. This practice not only damages the switch but it overheats the motor and can easily cause serious damage to the cutting tool held in the chuck of the power tool.

Cables. Never drag cables over rough surfaces, protruding objects, or sharp edges, and never permit heavy trucks or other objects to run over or rest on them. Hang the cables loosely coiled in order to prevent kinks. When extension wires are used, be sure to select the proper size, or the motor will overheat if the wire is too small.

Pneumatic Tools

Lubrication. Frequent and regular lubrication is of utmost importance for trouble-free operation. An improperly lubricated tool will work with reduced power and will eventually score. Therefore, inject into the tool at the intake bushing a few drops of high grade light machine oil every time the tool is connected to a hose line, and at the same time, squirt a few drops of the same oil into the live handle. (This part of the tool is usually separate from other lubricating means.)

Keep power hand tools at peak . . . it pays

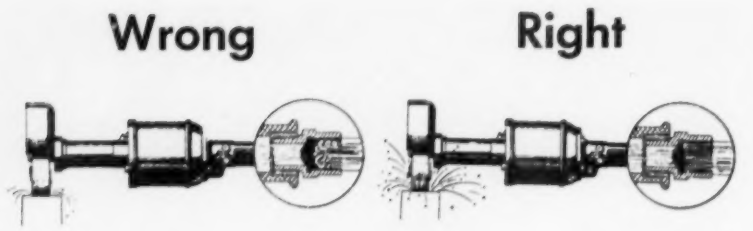


Fig. 1

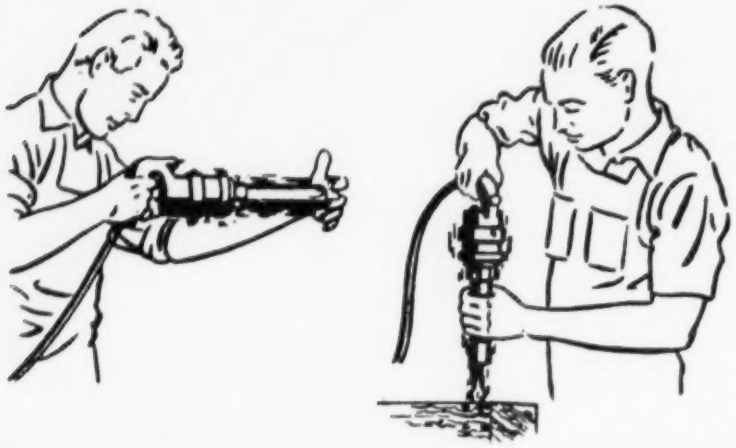


Fig. 2

Fig. 3

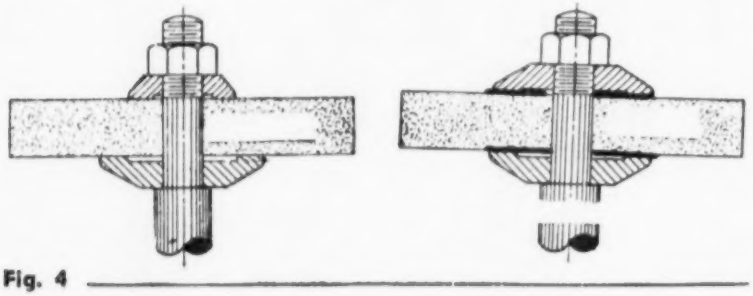


Fig. 4

Where air line lubricators are used, make sure that the right quality and quantity of lubricating oil is injected periodically. If the tools have built-in oil reservoirs, fill them at the start of each shift or oftener if necessary. If any of the bearings are equipped for pressure greasing, they too should be lubricated every day.

Air Supply. Proper air supply at the tool is one of the most important factors in conservation of the pneumatic tool, its power, and working time. The compressor supplying the air should have sufficient capacity for an adequate supply of dry air at the right pressure. Air connections, air lines and valves that are too small, are plugged up with dirt, have dirty strainers, or are operated with any other restriction of the necessary air supply, reduce the efficiency. Air strainers should be kept clean and no tools should be operated without them. Air connections, valves and manifolds should be as close to the operator's field activities as possible.

Moisture. Make every effort to eliminate moisture from air lines. Moisture is detrimental to the tool since it washes out the lubricant and causes rusting of the interior. Therefore, before any connections are made, blow out any water which may have collected in the lines. Make sure also that threads and couplings are clean.

Figure 1 in the "Wrong and Right Chart" shows how a clogged air strainer impairs the performance of an air tool. Strainers should be cleaned frequently so that an unimpeded flow of air is assured. They can generally be cleaned by blowing air through them in the reverse direction. Never punch holes in the mesh, since this defeats the purpose of the strainer.

Blow oil into the tools at the intake bushings after each shift as a conservation measure against corrosion.

Pneumatic hammers should never be operated with a loose handle, since this will in time damage the cylinder or the threads. If safety rivet-set spring clips are used, remove them either by hand or with the aid of special clip tongs, and not by striking them with some other object. The ends of rivet sets

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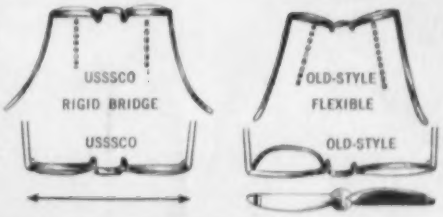
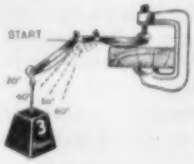


3 NO "PROPELLER" FRONTS. Stronger, more rigid bridge plus fully cured plastic hold lenses in straight alignment.

4 STRONGER EYE WIRES. Larger cross-section plus deeper, molded lens channel lock lens securely.

5 COMPLETE RECOVERY FROM STRESSES. In repeated tests using a 3-lb. suspended weight, which deflected frame approximately 30°, original shape was completely recovered.



6 STRONGER TEMPLE JOINT. Larger end piece with matching temple, mitered joint, and 5-barrel nickel steel hinges. Green cross plaque gives instant safety identification.

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and chisels should also be square, otherwise piston and cylinder will be damaged. A riveting set should never be shot out of a hammer, since this is not only dangerous but will chip the piston as well as the end of the set.

Examine from time to time the ends of the pistons, and if they are worn, the pistons should be replaced.

In Figure 2 is shown a very injurious practice of trying out air hammers without holding them against something to absorb the shock. This practice is sure to result in cracked retaining walls or damaged cylinders. With the tool bit in place, a block of wood will serve as a satisfactory "run-in" block and minimize the danger of damaging the tool.

When using chipping or scaling hammers, be sure that the chisel bushings are not worn and that the air is cut off entirely before connection is made. Similarly, drills, reamers, countersinks, or any tool with damaged tapers or tangs will injure the piston and the cylinder. If twist drills with straight shanks are used, the shanks must never be ground down for use in chucks of smaller capacity.

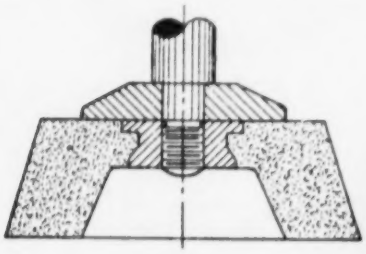


Fig. 5

The housing bolts on pneumatic tools should not be permitted to work loose. Operation under these circumstances results not only in poor performance but is very likely to damage the working mechanism. All parts of the tool should not only be tightened as soon as they show signs of looseness, but should be gone over carefully each time they are returned to the tool crib.

Mishandling of the tool as shown in the "Wrong" picture of Figure 3 occurs all too frequently, with damage both to the hand tool itself and to the wheel or cutting tool in it. Tools should never be dragged along the floor. When carrying such a power hand tool, the hose should be draped over the shoulder, so that no strain is put on the hose connection.

Grinding Wheel Care and Operator Protection

Only proper mounting and careful treatment can prevent injury to operator or serious damage to the grinding wheel. These hand tools usually are designed to run at high speeds, and the strongest bonded wheel, if treated carelessly, will break and cause severe injuries to the operator.

To avoid such unnecessary accidents, follow the instructions of the wheel manufacturer and heed the following operational requirements: Proper selection of the wheel, use of correct speeds, proper mounting, use of the right hood, use of approved eye protectors, and exercise of sufficient care in handling the tool.

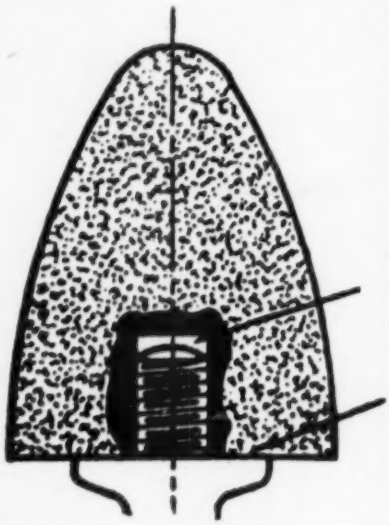


Fig. 6

Selection of Wheel. If any grinding is to be done on the side of the wheel, select a cup wheel. However, if a straight wheel must be used, as is the case when cleaning out grooves or working between projections, guard against cramping of the wheel caused by dangerous side pressures.

Increasing wheel life by choosing a wheel that is too hard is actually less economical from any standpoint than a softer wheel that offers increased safety, although it cuts more slowly. It is equally dangerous to apply sudden increased pressures on the workpiece and create hard spots.

Improper Mounting. The flanges holding the wheel should be matched, as shown in Figure 4, using blotters between the wheel and flanges. Flanges of different sizes should never be used.

The correct mounting of cup and cone wheels is shown in Figure 5 and Figure 6. The flat end of the flange must rest squarely on the steel bushing and wheel, with the end of the threaded spindle, allowing sufficient space, as shown, to avoid any pressure on the bottom of the bushing.

Correct Feeds and Speeds. Never deviate from the speeds given on the wheels. The safe operating speeds are plainly marked on all wheels and the tool should never be operated at any higher speed. Therefore, check the rated speed of the machine and see that it conforms with the requirements stated on the wheel. Check the speed governor from time to time to be sure that it is functioning properly. Check also the air gage of the compressor since any pressure that is too high is extremely dangerous. Flat spots on the grinding wheel may indicate that the air pressure is too low. As such flat spots increase, they not only cause undue bumping but finally lead to wheel breakage.

Eye Protection. Guard against impairment of eyesight and absenteeism from accidents to eyes by insisting that grinders wear safety glasses. Interest in your workers' safety will result in better work and higher morale.

Summary

To conserve power hand tools, good housekeeping in even the smallest shops should include the methodical care and maintenance of pneumatic and electric power hand tools. To keep these fine instruments working at their peak efficiency for many years, it is necessary for shop management to see that the few basic do's and don'ts prescribed here are carried out systematically and carefully.

Material by courtesy of Small Business Administration. Photograph by courtesy of General Electric Co.

Safety Went to Their Heads

. . . 4 Hard Hats That Did Their Job

This mason's helper smiles with good reason; his hard hat kept him from injury in a fall.

Safety hats for protecting against head injury have long been accepted as "on the job" wearing apparel for refinery workers of Esso Standard Oil Company. At Esso's Bayway Refinery, Linden, N. J., workers have had ample opportunity to see and reflect on the value of the firm's established safety practice. In four separate instances recently hard hats proved the "difference" in guarding workers against serious injury.

Three of these men were struck by various falling objects—an eight-pound piece of concrete, a spud wrench, a 25-pound piece of structural iron. The other one fell and struck his head. All four escaped serious injury.

Robert Jacklin, a sandblaster in the Yard Department, was chipping concrete from the base of an overhead pipe support when a piece of concrete weighing eight pounds and four ounces fell six feet and struck his hat. The only damage was a dent in the aluminum safety hat.

Stanley Spugani, a boilermaker, was working on a platform at a pipe still when he was struck by a ⅝-inch spud wrench dropped from a higher platform. The blow knocked the hat from Mr. Spugani's head and caused a longitudinal crack in the front part of the hat but no personal injury resulted.

Theodore Durett, a Yard Department employee, was working inside the furnace at a pipe still, assisting in the removal of brick and debris from the interior. A piece of structural iron weighing 25 pounds dropped from the roof of the fire-box. The iron, two feet long and weighing 25 pounds, struck edgewise on Durett's safety hat. An inch-diameter hole was punched in the hat and it split dissipating the force of the impact. Durett was found to have suffered only a strained neck in the mishap.

Vincenzo Mauro, a mason helper, fell from a scaffold while cutting brick. He plunged headlong to the concrete floor. The impact split his safety hat, but he suffered no serious injury.

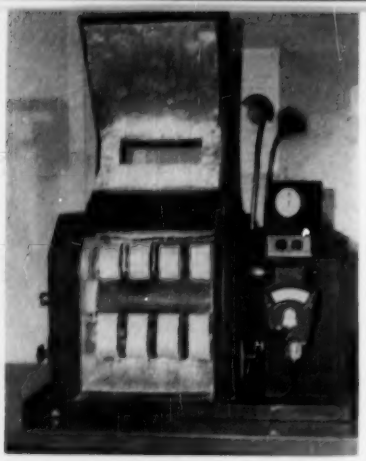
These four men are now completely "sold" on the advantages of cooperating with a well-organized safety program. One of the safety hats involved was the aluminum type ribbed hat and three were made of laminated plastic.

Only his protective headgear saved yardman when iron he holds fell on him as he worked.

A 21-pound bolt dropped 30 ft., striking head covering of this boilermaker. He was not hurt.

Concrete landed on hat of Robert Jacklin, sandblaster, but he took blow without injury.

Pictures by courtesy of Mine Safety Appliances Co.



This machine tests samples of cloth by flexing, creasing, abrading the fabric.

Specialists in protective apparel long have been concerned with the need for reducing the weight of asbestos safety clothing while still providing a high protection factor.

In their search for a way to preserve the insulation advantages of asbestos cloth while eliminating poor resistance to abrasive wear, lack of flexibility and heavy weight of safety fabrics, an internationally known organization has brought out a new line of coated asbestos cloths for hot jobs.

The manufacturers of the new coated fabric, known as "Silvabestos" reasoned that there could be evolved for asbestos cloths, a coating that would provide insulation protection equal to that of asbestos and also be highly resistant to abrasion. This coating then could be applied to much lighter weight cloths than the customary asbestos fabrics, thus providing superior fabrics for protective garments.

TABLE 2: HEAT RESISTANCE TESTS

Uncoated Vs. SILVABESTOS Coated Cloths After One Hour In Muffle Furnace At 450° F.

R/M Style	Finish	Yarn	Original Tensile (Average)	After One Hour At 450°F.	Retained Tensile	Increase In Retained Tensile
24H120	Uncoated	Warp	79.6 lbs.	46.6 lbs.	58.5%	
	"	Fill	96.8 lbs.	61.6 lbs.	63.7%	
	Silvabestos	Warp	116.4 lbs.	86.8 lbs.	74.6%	27.5%
	"	Fill	114.6 lbs.	109.0 lbs.	95.5%	49.9%
	Neoprene	Warp	85.2 lbs.	67.0 lbs.	78.6%	34.4%
	"	Fill	80.2 lbs.	78.2 lbs.	97.5%	53.1%
	Neo. & Sil.	Warp	113.4 lbs.	101.6 lbs.	89.5%	53.0%
	"	Fill	110.2 lbs.	106.3 lbs.	96.5%	51.5%
20H160	Uncoated	Warp	167.0 lbs.	90.6 lbs.	54.3%	
	"	Fill	71.0 lbs.	33.2 lbs.	46.7%	
	Silvabestos	Warp	182.8 lbs.	137.6 lbs.	75.4%	38.9%
	"	Fill	80.2 lbs.	56.2 lbs.	70.0%	49.9%
	Neoprene	Warp	151.8 lbs.	131.4 lbs.	86.8%	59.9%
	"	Fill	74.6 lbs.	52.2 lbs.	70.0%	49.9%
	Neo. & Sil.	Warp	192.8 lbs.	160.4 lbs.	83.5%	53.8%
	"	Fill	85.4 lbs.	82.6 lbs.	96.7%	107.1%
13P190	Uncoated	Warp	146.4 lbs.	81.8 lbs.	55.8%	
	"	Fill	54.2 lbs.	31.6 lbs.	58.4%	
	Silvabestos	Warp	167.8 lbs.	127.0 lbs.	76.0%	36.2%
	"	Fill	58.2 lbs.	53.0 lbs.	91.2%	56.2%
10P225	Uncoated	Warp	115.6 lbs.	61.2 lbs.	53.0%	
	"	Fill	51.6 lbs.	30.6 lbs.	59.3%	
	Silvabestos	Warp	117.4 lbs.	83.0 lbs.	70.6%	33.2%
	"	Fill	57.6 lbs.	50.0 lbs.	86.9%	46.5%
10P227	Uncoated	Warp	120.7 lbs.	62.0 lbs.	51.5%	
	"	Fill	104.7 lbs.	58.7 lbs.	56.2%	
	Silvabestos	Warp	133.5 lbs.	97.3 lbs.	73.0%	41.8%
	"	Fill	114.2 lbs.	89.3 lbs.	78.0%	38.8%
10P250	Uncoated	Warp	132.0 lbs.	74.7 lbs.	56.6%	
	"	Fill	77.5 lbs.	41.2 lbs.	53.3%	
	Silvabestos	Warp	147.3 lbs.	110.8 lbs.	75.0%	32.5%
	"	Fill	74.8 lbs.	61.5 lbs.	82.3%	54.4%

Coated with Mixture

After extensive field tests, two asbestos cloths weighing 1.6 and 1.9 pounds per square yard were selected as basic fabrics and coated over with a mixture of resins and aluminum. The two fabrics, designated as #20H160 and #13P190 respectively, were tested on both the Abradoflex and Wyzenbeck machines to determine their resistance to abrasion and flexing and have been tested for heat resistance to determine their rates of degradation under conditions of extreme high temperature.

The Abradoflex tester, designed to simulate the degradation a protective fabric would experience in normal wear, exposes strips of cloth to simultaneous flexing, creasing and abrasion. After three sets of samples are simultaneously tested for periods of 30, 60, and 180 minutes, the percentages of residual tensile strength in each set of samples is determined.

Increased Wear & Heat Resistance

Abradoflex tests on both the new cloths and uncoated asbestos cloths showed the wear resistance of the coated fabric was 63 to 297 percent greater than the wear resistance of the same cloths uncoated.

Similarly encouraging results were obtained on the Wyzenbeck machine. This equipment, widely used by textile laboratories to test

Light Fabrics Fight Heavy Heat

Operator handles aluminum ingots, fresh from moulds, at high temperatures.

the wearing qualities of upholstery fabrics and carpets, is a destruction test. Tests on the Wyzenbeck showed the new fabrics had resistances to destruction that were 39 to 249 percent greater than the same cloths uncoated.

The heat resistance of asbestos and the coated fabrics was tested by subjecting samples of all weights of both cloths to 450 degrees Fahrenheit in a muffle furnace for one hour and then comparing their residual tensile strengths with original tensile strengths. In these tests the new coated cloths showed retentions of tensile strength 27.5 to 56.2 percent greater than equal weights of uncoated cloths. (See Table 2)

These three series of tests demonstrate that an asbestos cloth with the new special coating will provide superior wear resistance and substantially improved resistance to heat degradation.

Illustrations and factual material on Silvabestos from Asbestos Textile Division, Raybestos-Manhattan, Inc. Further details upon request to the Editors.

TABLE 1: ABRADOFLEX RATINGS

As Determined By The Laboratory of The Asbestos Textile Institute

R/M Style	Finish	Original Tensile	Tensiles After Abrasion 30 Min.	60 Min.	180 Min.	Abrado. Rating	Wear Improvement Factor	Tensile Strengths 180 Min. Flexing	Flexibility Loss
24H120	Uncoated	114 lbs.	54	35	22	1935		114	0.0%
	Silvabestos	156 lbs.	135	111	96	6279	297%	154	1.3%
	Neoprene	121 lbs.	71	50	30	2546	36%	121	0.0%
	Neo. & Sil.	156 lbs.	113	86	62	4067	182%	153	1.9%
24H160	Uncoated	259 lbs.	139	136	125	4855		245	5.4%
	Silvabestos	280 lbs.	225	213	159	5788	27%	279	0.4%
	Neoprene	269 lbs.	197	189	164	6177	31%	251	6.7%
	Neo. & Sil.	298 lbs.	232	227	187	6388	49%	298	0.0%
13P190	Uncoated	205 lbs.	101	85	53	2645		204	0.5%
	Silvabestos	226 lbs.	179	135	103	4668	94%	224	0.9%
10P250	Uncoated	168 lbs.	120	106	41	2467		160	4.8%
	Silvabestos	176 lbs.	141	106	67	3868	63%	175	.6%

Operator above is busy lubricating fork lift truck in plant's maintenance shop.

Attention Fork Truck

Handle with

Here a fork lift truck is being used to carry skid loaded with bales of rubber.

by **M. R. BATCHE**
Manager of Safety
The Firestone Tire & Rubber Co.
Akron, Ohio

One of the most commonly used labor savers in industry is the power truck.

With the many different types of fork lift trucks, tractors and power transveyors, loads can be lifted, moved and deposited at other locations with little effort by the operators. Manual lifting, hazardous to hands, feet and backs, can be almost entirely eliminated with power trucks, greatly reducing the number of injuries from handling of material.

The use of trucks, however, presents new types of hazards and certain standards must be maintained if truck operations are to be safe.

Everything possible is done by The Firestone Tire & Rubber Com-

Special Safety Rules Propane or Liquefied

1. **Operators are responsible for equipment.**
2. **Before operating, check brakes, steering, horn, and general condition of tractors. Check carefully for any leaks of LP gas. Report irregular conditions to your supervisor.**
3. **Never start LP unit if there is a leak in the unit.**
4. **Don't store truck near intensive heat or combustible materials.**
5. **If unit is to stand for any length of time SHUT OFF HAND VALVE and let fuel system run dry.**
6. **Make sure you have been properly instructed on method of changing tanks.**

Tractor operator brings his machine in for regular and thorough checkup.

Operators:

Care!

Good power truck maintenance is essential part of company safety program.

for Operators of Petroleum Trucks

7. **Fuel containers may be exchanged if, before disconnecting the tank, the fuel supply is shut off and the engine operated until ALL fuel in the fuel system is consumed.**

8. **Never try to connect a fuel container when LP gas is escaping from the connecting point.**

9. **Never lock an LP unit.**

10. **Smoking is prohibited near LP unit.**

11. **Report immediately any injury to yourself or a fellow worker, or damage to equipment or property.**

12. **Do not operate tractor if ill or not in condition to work safely. Notify your supervisor.**

pany to insure the safety of plant truck operations, from thorough training of operators to constant maintenance of trucks.

Typical of the operations in all Firestone plants are those at Plant 1 in Akron, Ohio, under the Maintenance Department Manager, J. E. Nichols, and the shop foreman, R. A. Wagner.

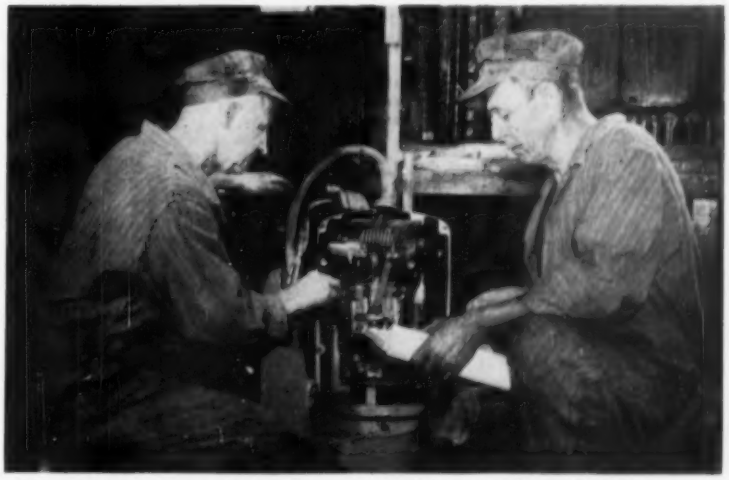
When a new power truck is received, it is inspected to see that no damage has occurred in transit. Before attempting to operate any new piece of equipment, shop mechanics study the manual which accompanies it from the manufacturer of the equipment.

After careful inspection and attention to such details as connecting the battery leads and fueling, the truck is ready for operation.

Maintenance is divided into three sections, electrical, mechanical and lubrication. Some maintenance is avoided by frequent inspections

MATERIALS HANDLING SERIES
other articles Jan. and March

With fork lift truck raised on chain blocks, its brakes are given attention.



These mechanics scan instructions for electrical hand-operated tow truck.

and by replacing parts that need attention before costly repairs are required. The plant has six floor levels and elevators must be used to transfer materials from floor to floor. Since trucks must be able to travel on and off the elevators safely, careful maintenance of brakes takes on added importance.

The brakes are inspected for lining wear and are replaced before rivets score the brake drums. Any dirt or grease is washed out with safety solvent and the lining dried before reassembling. Trucks are examined for bent rods or levers and hydraulic brakes are checked for fluid level and lines bled if any air has entered the brake systems. All trucks are scheduled regularly to go into the Maintenance Shop for lubrication and safety checkups.

Not only is it important to select the best equipment for a specific operation and keep it properly maintained, but it is also necessary to train the personnel to operate the equipment. Safety rules are posted on all power trucks, tractors and power transveyors. (See accompanying "General Safety Rules") Safety men also have recently developed another set of safety rules specifically for the operators of propane or liquefied petroleum tractors, and the rules are now posted on these types of trucks. (See accompanying "Special Safety Rules")

Pictures by courtesy of The Firestone Tire & Rubber Co. Text by courtesy of The Industrial Commission of Ohio's "Monitor."

General Safety Rules

for Operators of Power Trucks, Tractors and Power Transveyors

1. Operators are responsible for equipment.
2. Before operating, check brakes, steering, horn and general condition of tractor. Report irregular conditions to your supervisor.
3. See that tractor is lubricated regularly by maintenance department.
4. Do not make repairs. Report need for repairs immediately.
5. Take a good look at your load before you pick it up. Consider weight, balance, etc. If doubtful, move with extreme caution.
6. Consult supervisor if you believe load to be unsafe.
7. Be sure to pick up load squarely. Avoid making quick or jerky starts or stops.
8. Look before you start. Do not back out from under load without looking behind you.
9. Face the direction in which the tractor is moving.
10. Be sure you can see where you are going.
11. Do not carry passengers under any condition.
12. Keep at least ten feet behind other tractors when following.
13. Slow down when running on wet or slippery floor.
14. Block wheels on trailer at dock before entering with tractor.
15. Slow down to two miles per hour and sound horn when passing a doorway or going around a blind corner. Don't cut corners.
16. Stop, look, and sound horn when entering main aisleways, intersections or roadway. Watch out for pedestrians.
17. Approach all elevator gates slowly and at such an angle that tractor cannot go into elevator shaft if unable to stop. Stop four feet from gate.
18. Push load ahead of you onto elevator and set emergency brake to prevent tractor from moving when elevator is in motion.
19. High lift truck loads must be lowered before traveling. Carry load three to six inches above floor. Tilt load backward for better balance.
20. Keep forks of high lift trucks close to floor when traveling without load, to prevent injury or damage.
21. Elevated loads must be handled carefully. Watch overhead clearance, fire extinguishers, switches, pipes, electrical conduits, etc.
22. Park safely—do not obstruct aisles—never leave gas tractor with engine running.
23. Stop motor when refueling gas tractor.
24. Lock tractor, or remove control handle, when not in service.
25. Report immediately any injury to yourself or a fellow employee, or damage to equipment or property.
26. Do not operate tractor if ill or not in condition to work safely. Notify your supervisor.

Materials Handling Show

Thirty-two speakers, drawn from all types of industries, will lead discussions at the 7th National Materials Handling Conference, it was announced by the American Material Handling Society, sponsor of the meeting. The conference will be held in conjunction with the National Materials Handling Exposition at Convention Hall, Philadelphia, April 29–May 3. The show, the original one in the field, is produced by Clapp & Poliak, Inc., New York.

In keeping with the broad concept of the show, where more than 100 types of materials handling equipment will be demonstrated under simulated plant conditions, the conference will emphasize systems of handling, rather than any particular type of equipment. Both the show and conference have as their theme, "Materials Handling, Key To Automation." About 250 companies will exhibit.

The conference will open with a discussion of the trend of automatic handling and will close with a consideration of the needs for greater emphasis on handling in the years ahead. Among topics to be discussed are new perspectives in manufacturing under automatic handling; the new look in shipping; eliminating warehouses; organizing a handling program; the effect of handling systems on plant design and layout; selecting and buying handling equipment, as well as getting maximum usage from it, and enlisting cooperation from plant personnel in the handling program.

Advance registration cards may be obtained from Clapp & Poliak, Inc., 341 Madison Av., New York 17, N. Y.

"Smoke-eaters" from the United States Lines take a breather after having put out a fire in mock ship's engine room.

Contamination Defense at Sea

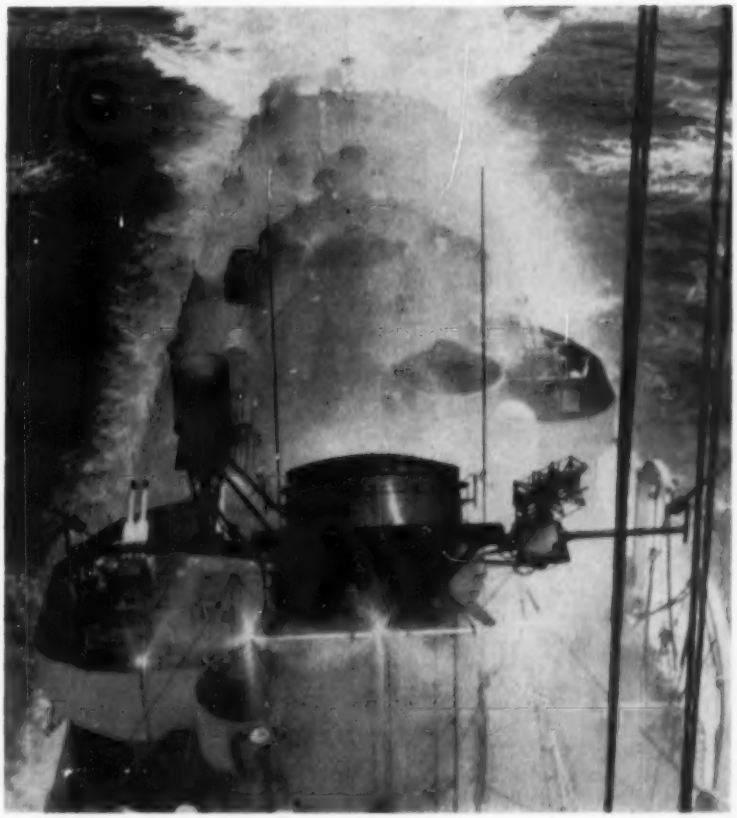
1. Maritime Safety Training
2. Washdown Protects Navy Ships

Maritime Safety Training

Three employees of the United States Lines took part in the first Maritime Administration Training Program stressing defenses against atomic, biological, and chemical warfare held recently at the Military Sea Transportation Service Training Facilities at the Naval Supply Depot, Bayonne, New Jersey.

The course included lectures and films on atomic bursts, coupled with class participation in detecting and monitoring radiation hazards and decontamination counter-measures directed against radioactive fallout. Training in firefighting and damage control as related to atomic, biological and chemical defenses completed the instruction program.

Participants were selected by the management of operating vessels from among ship personnel who volunteered for the training. The first three United States Lines' volunteers were W. D. Lindsay, Safety Director, United States Lines, W. L. Howard, Assistant Marine Superintendent, United States Lines and A. Quellmalz, Chief Engineer, S. S. American Press. Hewlett Bishop, the Atlantic Coast Director of the Maritime Administration coordinated the schedules between management and the Military Sea Transportation Service.



A cleansing, protective spray drenches destroyer's surfaces in man-made storm.

Studies conducted by the Maritime Administration clearly demonstrated the need for such training among merchant seamen. Enthusiastic support and cooperation for the program was given by the

This seaman shows how easily vinyl pipe sections can be solvent-welded.

Marine Section of the National Safety Council and the American Merchant Marine Institute.

Picture by courtesy of United States Lines.

Washdown Protects Navy Ships

Washdown systems have now been developed to protect every class of Navy ship, from minesweeper to aircraft carrier, from contamination by radioactive fall-out during and after an atomic or hydrogen bomb blast.

A protective, cleansing spray, drenching all exterior surfaces above the waterline, makes it possible for the ships to continue in action without exposing the men to lethal radioactive particles that otherwise might remain for weeks or even months on decking and superstructures.

The systems are designed so that they can be readily installed by the ships' crews; the manufacturer has worked out 120 different designs to permit what amounts to "do-it-yourself" installation.

By using spray nozzles especially selected for this purpose (as many as 500 on a large carrier) and lightweight rigid vinyl plastic pipe, the system can wash down in combat situations a ship like the U.S.S. Forrestal with thousands of gallons of sea water a minute.

A crew of 10 Navy Shipfitters could install a complete washdown system on a carrier like the Forrestal in two weeks' time. Eight crewmen could fit out a destroyer with the protective spray apparatus in a week.

In earlier tests some Navy vessels, among them the carrier Shangri-La, were equipped with washdown systems using metal pipe and fittings, but the added weight posed a serious problem. On a destroyer, for example, the earlier washdown systems added so much weight to the ship that its combat effectiveness might have been impaired.

The answer was found in rigid high impact vinyl plastic pipe, one-fourth the weight of steel pipe and also much easier to install because it uses simple, but extremely strong solvent-welded joints. Other factors are its flexibility, high-impact strength, non-corrosiveness, and the fact that it is not affected by freezing or tropical temperatures. Sea water has absolutely no deteriorating effect on the plastic material, and it will not support marine growth.

The washdown system design covers all the necessary rigid vinyl plastic pipe, fittings, bushings, adapters, hose connections, hose racks, hangers, spray nozzles and even the adhesives required for fast and efficient assembly. Adapters makes it possible for the washdown system to be tied into the ship's fire protection mains.

Picture by courtesy of B. F. Goodrich Chemical Co.

10,000th Wise Owl

Pennsylvania Governor George M. Leader recently welcomed a 22-year-old Newell, Pa., industrial worker as the 10,000th member of the Wise Owl Club of America, nation-wide eye safety organization.

Romualdo Gallo, father of one child, qualified for membership earlier this year when he saved himself from blindness by having the foresight to be wearing eye protection when an accident occurred. A native of Italy who entered the U. S. in 1951, he is a mechanic's helper at the Newell works of General Chemical Division—Allied Chemical and Dye Corporation.

Governor Leader enrolled Gallo in the Wise Owl Club on behalf of the National Society for the Prevention of Blindness, sponsor of the club, as part of the observance of September as "Sight-Saving Month."

Gallo told Governor Leader that the accident in which he cheated blindness was "one of those simple things which could have become a tragedy."

"The mechanic I was helping was standing about five feet directly over me, trying to start a nut on a bolt. The nut slipped and fell straight down, directly towards my eyes. It struck the right lens of my safety goggles with enough force to shatter it, but it did not reach my eye."

Fellow employees attested to the fact that had the nut hit Gallo's naked eye, loss of sight would almost certainly have occurred.

The Wise Owl Club was formed in 1947. Each of its members, who include men and women workers as well as vocational students, has saved the sight of at least one eye by wearing eye protection when accidents occurred. Gallo, in addition to being the 10,000th person enrolled in the club since its establishment, is the 777th to qualify for membership from Pennsylvania.

Officials of the National Society for the Prevention of Blindness estimate that, since the average compensation award for the loss of an eye is about $3,500, the Wise Owl Club membership represents a savings of at least $35,000,000 in this area alone, in addition to its personal value to the members who saved their sight.

Accompanying Gallo to Governor Leader's office were Frank Carroll, superintendent, and Walter Ansill, safety supervisor, of the Newell plant where Gallo works, as well as Webb Brown, president of Local 12421, District 50, United Mine Workers, of which Gallo is a member.

The National Society for the Prevention of Blindness was represented by James E. O'Neil, director of industrial service for the organization. The Society, now in its 48th year, is a voluntary, nonprofit organization entirely supported by contributions. Its headquarters are located at 1790 Broadway, New York City.

243—Q

STONEHOUSE SIGNS
For Accident Prevention

"No Admittance" does not always mean simply "don't come in." It is often a warning of danger beyond the posted sign.

For there are places in modern Industrial plants where it's not entirely safe for just anyone to enter. So "No Admittance" is a sound precaution.

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18007

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Like all other Stonehouse products, these signs are made in accordance with American Standards Specifications.

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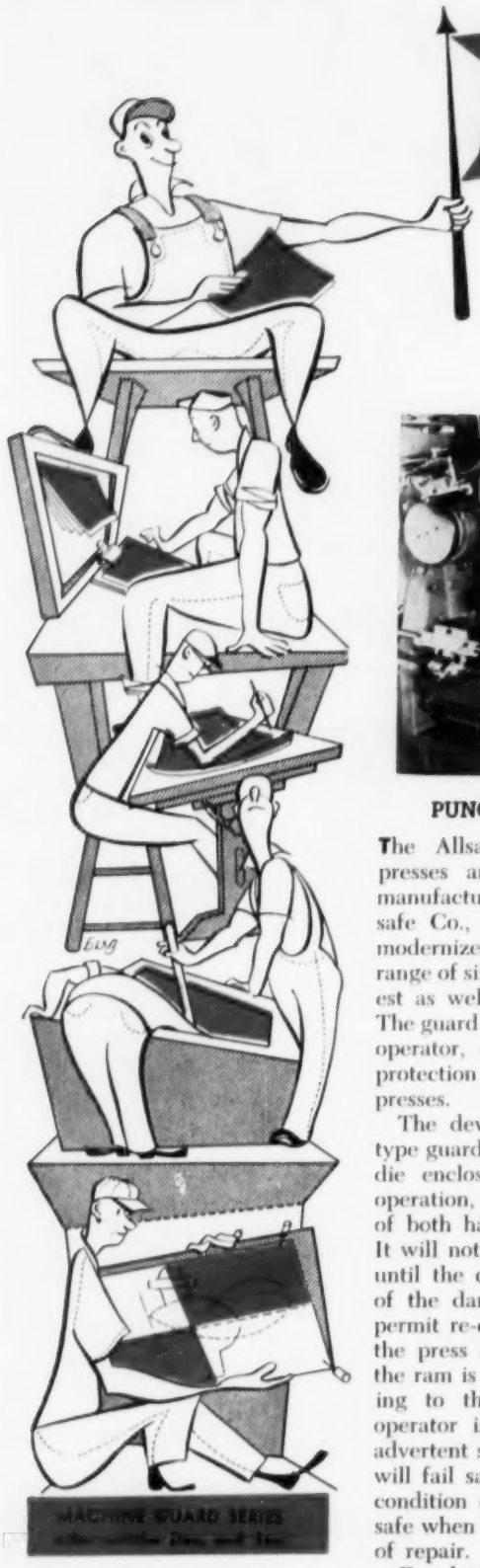
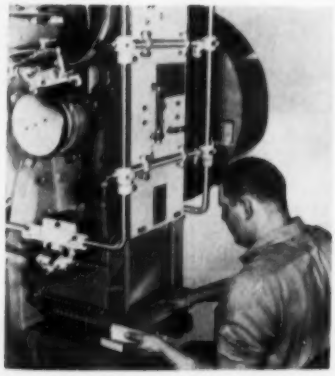




PUNCH PRESS GUARD

The Allsafe Airgard for punch presses and hydraulic machines, manufactured by the American Allsafe Co., Inc., has recently been modernized and is now made in a range of sizes suitable for the smallest as well as the largest presses. The guard is said to insure complete operator, die setter and meddler protection on all makes of punch presses.

The device is a movable gate-type guard which forms a complete die enclosure for every type of operation, while permitting the use of both hands for parts handling. It will not allow the press to start until the operator's hands are out of the danger area, and will not permit re-entry into the area until the press completes its cycle and the ram is safely stopped. According to the company, the press operator is safeguarded from inadvertent strokes since the Airgard will fail safe when any hazardous condition occurs. It will also fail safe when it is damaged or in need of repair.

For details, use **Key # MG-1** on Inquiry Card on page 35.

GRINDING WHEEL GUARD

The Black & Decker Mfg. Co. has announced a new cup guard attachment for use with saucer grinding wheels on Black & Decker portable electric grinders. The new cup guard assembles quickly and easily to make a snug fit and revolves with the wheel. It offers the safety advantage of complete working visibility, the company states. Since the guard revolves with the wheel and attaches to it, it can be used only with threaded hole insert wheels.

An important feature of the new cup guard accessory is said to be the elimination of tool overload which occurs when a cracked wheel rubs a non-revolving type guard. The Black & Decker cup guard

meets the specifications set forth in the American Standards Safety Code set by the safety committee of the Grinding Wheel Institute.

For details, use **Key # MG-2** on Inquiry Card on page 35.

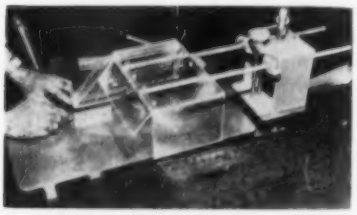
TRIM-SAW GUARD

The Brett-Guard Company has announced a new guard for composing room trim-saw protection in printing plants and engraving shops. Called the Brett-Guard TRIM-SEE, it is made of clear plexiglas acrylic plastic so that work can be seen at all times. It

MACHINE GUARD DEVELOPMENTS

protects the user not only from finger injury by the saw blade but also safeguards the operator and other workers close by from dangerous flying metal chips. The guard is designed for the particular requirements of all composing room trim saws.

The side of the shield that rides over the raising and lowering portion of the table has a hinged flap which raises automatically when the table is lowered and automatically falls into position when table is raised. The guard remains on the saw table at all times. It cannot be flipped back. It remains rigid over the blade and does not rest on the work being trimmed. It does not hamper visibility in any way so that the operator need not remove it to perform any trimming or angle cutting operations. The company states that inasmuch as surrounding workers are not compelled to leave their work area when saw operations are being performed, increased production is achieved. The Trim-See permits



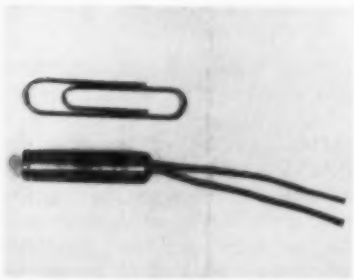
the operator to manipulate electro cuts and linotype slugs less than ⅜ of an inch long and protects the image surfaces from being damaged during cutting. This latter feature is made possible by employing a twin set of solid arms to suspend the transparent shield firmly above the saw blade in a fixed position which permits neither rock, sway, nor swivel.

The easy adjustment between the table top and the shield is accomplished by means of the precise Mechanized Control Housing with a conveniently located crank handle. This adjustment feature gives maximum protection to the operator even when the saw itself has to be changed from the raised to the lowered position. A special mounting plate to accommodate this housing is provided. Rigidity of plexiglas shield covering the saw blade depends on relative length of Moment Arms. In order to obtain sufficient base and still have this base for full adjustability, the control housing is constructed with thumb screws for horizontal adjustment, and a lead screw with an integral relief member for vertical adjustment. This relief member is provided to avoid damage due to unusual pressure.

For details, use **Key # MG-3** on Inquiry Card on page 35.

MINIATURE THERMOSTAT

The New Scaico miniature thermostat, smaller than a paper clip, is an addition to the company's line of automatic temperature controls. Designated the "Tini-Tempswitch," it measures ¼" O.D. x 1" long. Also available is a full line of switches



with various mountings in ½" O.D. and also ⅝" O.D.

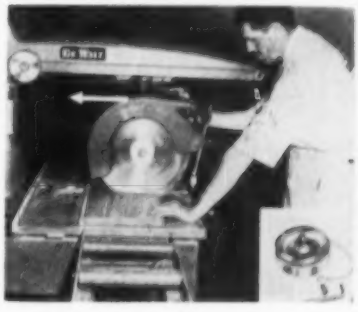
The new thermostat is particularly suitable as a precision temperature control in cathode tubes and in many other special and general applications. It is available in plain, flanged or screwed head mounting, and either "two wire" or "grounded" models. The rated load is 1 amp. 110 volts A.C. The following standard operating ranges are available: +50 to 175 degrees F., 159 to 275 degrees F., 250 to 275 degrees F. Another feature is its ability to operate repeatedly on extremely close differential of ⅛ degrees between the make and break setting in a properly designed and heat balanced system.

For details, use **Key # MG-4** on Inquiry Card on page 35.

CARRIAGE RETURN SAFETY DEVICE

A safety device for the automatic return of the motor carriage and cutting member of its radial arm woodworking machines has been introduced by DeWalt Inc., a subsidiary of American Machine & Foundry Co. Known as the Spir'-Ator safety return device, this spring-actuated unit is said to increase operator protection from moving parts of the machine by immediately returning the cutting mechanism to rear idle position the instant he relaxes his forward pull on the carriage.

The Spir'Ator is a self-contained unit designed to use existing drilled and tapped holes in the motor carriage and radial arm of DeWalt Model GE machines. Manufactured for DeWalt by the Hunter Spring Company, the device, when



properly installed, offers little if any resistance to the forward pull of the motor carriage. It employs a special spring arrangement and cable-retrieving reel to permit a long cable payout without excessive force build-up.

For details, use **Key # MG-5** on Inquiry Card on page 35.

TWO-HAND CLUTCH CONTROL

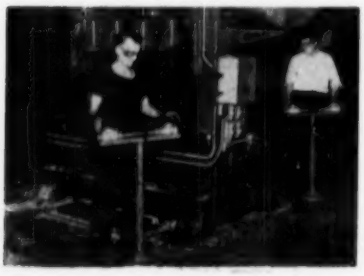
An improved electric two-hand clutch control for industrial machines that increases both production and operator safety has been developed by MICRO SWITCH. Use of the trip control system can increase productivity of manually-operated power machines by as much as 20 per cent, the company said, because of the simple, direct operating motions of the operator, the feather-touch and finger-tip operation of the control switches, and other features which reduce operator fatigue and speed up the machine's operations.

The new system incorporates many safety features. The "fail-safe" feature makes accidental operation of the clutch impossible. The clutch can operate only when the control system is functioning properly. Two sets of contacts close on the actuator load on each operation, and both must be released before the next operation can be performed. A third set of contacts "breaks" the load, eliminating any danger of sticking contacts. If a component fails or is broken in any position, the control system becomes inoperable.

Operators can't cheat on the control by tying down one control switch and attempting to operate the system with one hand. The system's exclusive "can't-cheat" feature requires operation of all the switches in the control circuit within a predetermined and adjustable time interval. Both hands must be on the controls and thus cannot be extended into the danger area.

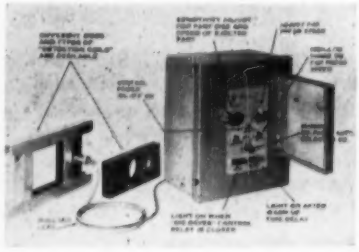
The system's "set-up-and-run" feature protects operators, set-up men and expensive dies from an unexpected power stroke during set-up. The machine's motor must be turned off before the clutch can be actuated. The control also prevents the clutch from being engaged on a dead fly-wheel and an unexpected stroke occurring when the motor is started.

For details, use **Key # MG-6** on Inquiry Card on page 35.



DIE-SAVER CONTROL

The new "Die-Saver," manufactured by Robotron Corporation, makes press operation automatic. The electronic control attaches easily to stamping presses to reduce the possibility of damage to dies and presses due to "double heading" on non-ejected parts. In addition, it reduces accidents, allows faster automatic feeds, and increases production. The fail-safe control is enclosed in a shock-mounted cabinet which is easily



portable for quick press mounting near any 115 volt, 60 cycle outlet.

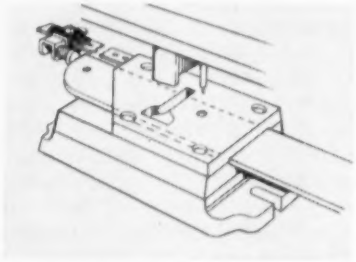
The unit prevents recycling if ejected parts fail to pass the detection coil. It may be used for any stamping application where the press cycle can be made to stop at the top of its travel as it completes 360 degree revolution or can be made to stop just before the punch enters the lower die. The press must be electrically initiated or it may be converted with a special Robotron kit.

Other features are: any type of counting device used with it will count only parts processed, not machine cycles; a socket is provided for connection of a pre-set counter to shut off press at a certain number of parts; detection devices are available in various sizes and types to suit application; the control relay and time-delay relay for tube warm up are plug-in type for quick replacement.

For details, use **Key # MG-7** on Inquiry Card on page 35.

PARTING DIE STOP

A new die stop has been introduced by Keystone Engineering and Manufacturing Co. Designated the Keystone Parting Die Stop, it can be installed in minutes



on any die and is adjustable two ways for any parting die operation. It is adaptable for any cut-off operation such as parting dies, cut-off saws, etc.

The die stop is installed by drilling one screw hole plus two dowel holes on the back rail of the die, screwing the die stop in position and anchoring it with dowel pins to hold it steady. Adjusting the stop by sliding it into position and tightening the lock screw, then making fine adjustments for length by turning the lock nut on the stop shaft, completes the steps necessary for installation. The square shaft prevents rotation while fine adjustments are being made. The device is made of steel throughout and is rustproof-plated. It can be re-used many times and transferred from die to die. A strong spring absorbs cutting shock.

For details, use **Key # MG-8** on Inquiry Card on page 35.

MALFUNCTION DETECTOR

A new vibration monitor is said to anticipate and prevent trouble in rotating and reciprocating machines by responding to slight increases in

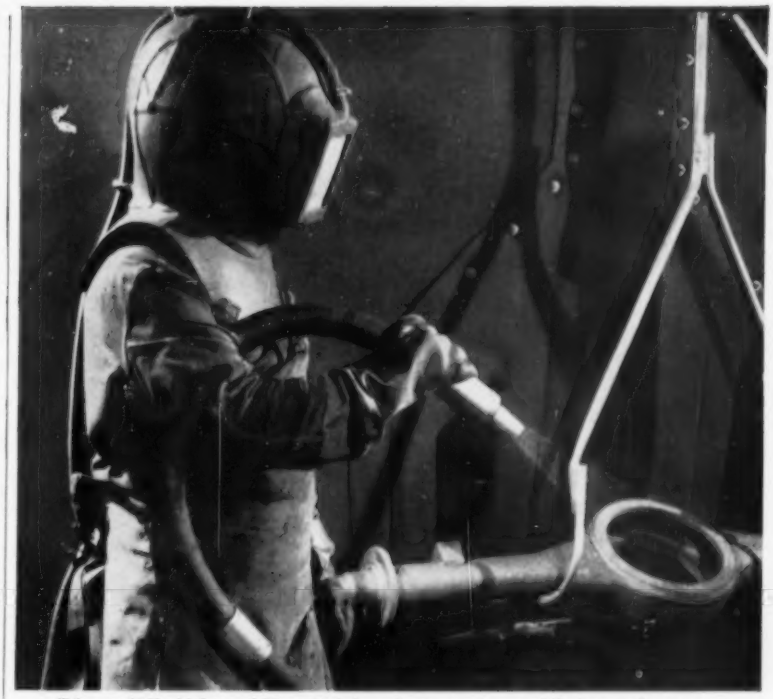
roughness or vibration and cause a shutdown before failure occurs. Examples of detectable malfunctions are failing bearings, bent shafts, unbalance, broken blades, etc. Applications include pumps, motors, compressors, blowers, gas engines, diesels, centrifuges, turbines, generating equipment, test stands, etc. The device may be used singly on small equipment; in pairs on driving and driven equipment, or in series or parallel combinations to monitor each bearing. Acceleration range is 0-2G's to cover all types of rotating equipment at speeds up to 18,000 RPM.

The Model 5 Vibraswitch includes a shock-free holding and reset mechanism for automatic or remote operation to prevent actuation from starting or from normal or accidental transient shocks. The unit employs no vacuum tubes or electronic components, is maintenance-free and fail-safe. It is supplied in an explosion proof housing for Class I, Group D; Class II, Groups F and G locations, or gasketed for non-hazardous outdoor locations. The housing is of cast aluminum threaded for ¾" conduit. Terminals are provided for heater resitor to prevent condensation in semi-tropical or tropical climates. Available from the Beta Corp.

For details, use **Key # MG-9** on Inquiry Card on page 35.

CONVEYOR SYSTEM OVERLOAD CONTROL

A new automatic safety controller, which provides warning and prevents damage from abnormal load conditions on electrically driven conveyor systems, has been an-



Edmont 30% thicker red Neox (reinforced neoprene) coated Redmont gloves protect operator's hands on high pressure shot blasting jobs.

How Edmont job-fitted gloves solve hand protection problems

Redmont No. 934—6 styles

Neox No. 922—8 styles

Monkey-Grip No. 312—13 styles

Finds savings in safety

EDMONT CASE NO. 585: For handling accumulated mercury, mercury products and tramp iron particles in the amalgamation boxes of mill grinding circuit, Edmont recommended this extra heavy duty Neox (reinforced neoprene) coated glove with cured-in safety grip finish (Redmont No. 934). It wore 3 times longer than previous gloves because it resisted cutting, puncturing and snagging as well as abrasion.

Glove costs cut 85%

EDMONT CASE NO. 604: For a cadmium plating operation, Edmont recommended this Neox coated glove (No. 922) which has the toughness of neoprene but is as flexible as plastic. Adoption of the *job-fitted* glove reduced hand protection costs from 9.7 cents to 1.3 cents per man-hour.

Protects from strong solutions

EDMONT CASE NO. 611: For job of cleaning small forged parts Edmont recommended this plastic coated gauntlet (No. 312 Monkey-Grip). It protected hands from oil, strong alkaline and cyanide solutions; wore 6 shifts longer than gloves previously used. Monkey-Grips are also available with triple-thick palm coating for extreme abrasive conditions.

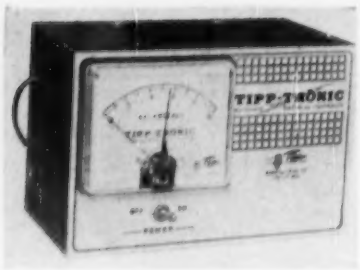
FREE TEST OFFER TO LISTED FIRMS: Tell us your operation, materials handled, temperature condition. From our more than 50 different types of work gloves we will recommend the glove and coating that best fit your job and send you samples for on-the-job testing.

EDMONT MANUFACTURING COMPANY
1256 Walnut Street, Coshocton, Ohio
In Canada write MSA, Toronto

Edmont

Edmont JOB-FITTED GLOVES

(For details, use Key # A-12 on card on page 35)



nounced by the Tipp Mfg. Co. The electro-mechanical device, called the Tipp-Tronic, affords protection against extreme conveyor overload and the need for lubrication which results in the minimum line pull to keep within its ultimate rating, as well as electric motor protection at an even finer control than normally used in conjunction with electric motors.

A self-contained unit, it instantly and automatically shuts off the conveyor system at any predetermined load setting. Highly sensitive and accurate, the device measures and acts upon variations from normal load over a wide range. It may also be set up to give warning or alarm of impending trouble before the shut-off stage is reached. On multi-motor-driven conveyor applications, one unit may be used as a control on the total current of all the motors, or one may be used with each motor. The device is not affected by line voltage variations. On most conveyor applications, the unit is reset manually after it has given an alarm and shut off the system.

For details, use **Key # MG-10** on Inquiry Card on page 35.

AUTOMATIC POWER PRESS CONTROL

The Trippit, a new electric combination master control, for power presses, shears and brakes, is now available from General Automation Corp. By replacing much of the operator's burden with automatic control, and by permitting him to perform his task with less fatigue and greater safety, the manufacturer claims the device will increase production, eliminate rejects and lessen down-time from jamming or die damage.

For hand-fed and secondary operations, the piece part trips the press automatically. The press will not operate until the piece is properly and accurately nested. A second stroke cannot be obtained until the piece is removed and another blank inserted. Gauging is automatic, rejects are eliminated, pedals are unnecessary, and the point of operation can be guarded more completely than ever before. When the master control is set to repeat, on fully automatic set-ups, the press will stop automatically when jamming occurs or the end of the strip or coil is reached. There is also a provision for automatic shut-off of the press after a pre-set count.

Two-hand safety trips requiring the simultaneous use of both hands are also provided. Actuated by finger-tip pressure, they are of the approved "fail safe—can't cheat" type. With the Trippit electric foot pedal only a slight operating pressure is necessary rather than the 20 to 50 lbs. force usually needed for a mechanical foot pedal.

110 and 24 volt counters are available. Bell wire to the 24 volt counter socket can be run from each machine to a centralized counter control panel for supervisory purposes. There is also provision for photo electric operation and safety, press overload protection and operation of auxiliary equipment such as slide feeds, etc. The device weighs approximately 20 lbs. with accessories, and measures 7″ x 7″ x 6½″.

For details, use **Key # MG-11** on Inquiry Card on page 35.

PHOTOELECTRIC POWER PRESS GUARD

The Photobell Co., Inc., has introduced a photoelectric guard designed to stop the operation of a power press when a foreign object interrupts the light beam screening the danger area. Further operation is prevented until the area is cleared. The guard also renders the press inoperative should the power supply to the device fail, a lamp in the device burn out, or the relay coil become damaged.

The unit consists of one light projector and one receiver for each beam projected, the projector furnishing a number of parallel, horizontal beams of light 1½ inches in diameter and spaced on two-inch centers. The rays of light effectively screen areas up to six feet long. Operable with line voltages from 105 to 125 volts, 60 cycles, the device is available with 6, 8, 10, 12 or more beams of light per set. The relay is released within $\frac{1}{50}$th of a second after a light beam is interrupted, stopping the press. Adjacent lighting, the company states, normally does not interfere with the operation of the device.

For details, use **Key # MG-12** on Inquiry Card on page 35.

Traffic Safety Topics

A new quarterly newsletter service that will provide detailed technical coverage of timely traffic safety developments and problems has been inaugurated by the Accident Prevention Department of the Association of Casualty of Surety Companies.

The first issue, which appeared in December, provided an unusually complete analysis of uniform stopping distance charts, including the need for the charts and a full report on what has been done to date to establish them. The three remaining issues scheduled to appear in the first year of publication will deal with the speed problem, the relationship of drinking to driving and the purpose and findings of the Cornell University Auto Crash-Injury Research project.

The reference service, to be called "Technical Traffic Topics," will be distributed without charge to groups and individuals interested in traffic safety matters. Newsletter subscription information can be obtained by writing to the Accident Prevention Department, Association of Casualty and Surety Companies, 60 John Street, New York 38, New York.

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tolerance...from every employee...every month.

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THE JOHN DOE COMPANY, INC.
PROTECT YOURSELF
3
WAYS
There are three safe practice ways that do the most good in keeping free of accidents, all based on your personal desire to know safety and keep yourself safety-minded by studying the hazards of your work. They are
1 Make sure all guards are in place and working and wear the personal protective equipment your job requires.
2 Learn the safe way to do a job and do it just that way.
3 Report, avoid or eliminate all unsafe conditions.
As we see it: Safety is part of every job and like any craft it requires skill.
John Doe

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Your Signature Here

NOTE:
Your Safety News is designed to promote better employer-employee relations. Every item is carefully weighed from this viewpoint.

INSIDE PAGES
(pages 2 and 3)

So Goes the World
Lions & Machinery have Hungry Jaws
YOU DON'T HAVE TO TWIST ITS TAIL
NEVER REACH INTO MACHINERY WHILE IT IS RUNNING!
Guard Well
WANTED
from the CARELESS ACTS of others the WISE MAN corrects his own
SAFETY SHOES
WORK OVERTIME
Dress for Safety
SAFETY SHOES
FALLS
FALLS KILL 60 EVERY DAY

IN YOUR EMPLOYEE'S INTEREST

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Artwork is carefully chosen to lodge home each point. The cartoon style makes YOUR SAFETY NEWS as familiar and as welcome as the Sunday supplement.

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Keeping the contents folksy, adding the grace note of humor, delivers your safety message with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of tolerance.

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FREE BULLETINS & CATALOGS

As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE. To obtain copies write in the key numbers on the free-postage card below.

PERSONAL PROTECTION

Lineman's Equipment 241
Charleston Rubber Co. Multi-paged catalog describes a line of lineman's safety equipment. Fully illustrated, it includes prices, recommendations and specifications for a wide choice of gloves, sleeves, warning flags, blanket clamps, etc.

Industrial Aprons 242
The Surety Rubber Co. A line of industrial aprons made from various materials to meet many special needs is featured in this illustrated brochure. Test swatches are included for the various aprons, as well as information on the company's line of protective gloves, leggings, spats and sleeves.

Rubber Work Gloves 243
A. J. Tower Co. A wide choice of waterproof protective clothing, made from rubber latex, is illustrated and described in this colored bulletin. The items include pants, jackets, overalls, hats, coats, etc., which may be ordered by using the handy size chart that is featured.

Safety Hat Liner 244
Duggan Safety Products Co. Featured in this illustrated bulletin is a safety hat liner for use by uniformed personnel. The comfortable liner, made of tough plastic, fits any 8-point uniform hat and is completely hidden from view.

Eye Protection 245
Bausch & Lomb Optical Co. Illustrated brochure details a combination-type safety frame featuring a metal bridge with acetate eyewires and temples. Features of the eyewear include interchangeable temples, adjustable or rigid nose pads and wide vision lenses, as well as a tough, non-flammable acetate frame.

Head Protection 246
E. D. Bullard Co. 12-page "case history" booklet, illustrated with cartoons, relates the importance of wearing safety headgear. Material on the use and maintenance of headgear is included, along with illustrated descriptions of the company's line of safety hard hats.

DUST & FUME CONTROL

Swing Arm Exhaust System 247
C. L. Ammerman Co. Illustrated bulletin describes a wall or ceiling-mounted swing arm exhaust system designed to collect fumes at their source. The arm, which has an 180 degrees range of swing, will extend up to 22 ft. from its mounting, and can be swung out of the way after use.

Dust Control 248
Pangborn Corp. 16-page booklet outlines standards of control and efficiency in dust collection, lists the primary component parts of a dust control system, and describes the importance of dust control in relation to reduced maintenance costs, employee morale and utilization of dust by-products. Included is a wide range of dust control equipment and accessories.

ELECTRICAL & LIGHTING EQUIPMENT

Emergency Lighting Units 249
Exide Industrial Div., Electric Storage Battery Co. Described in this illustrated folder is a line of automatic emergency lighting units that provide instant illumination when normal power fails. The folder includes charts showing beam coverage, light intensity, protection time, etc.

Screw-Type Lamp Changer 250
A. B. Chance Co. A 12-foot lamp changer for use with screw-type bulbs in rigid sockets is described in this illustrated brochure. The unit is available in a rigid neck-type as well as a flexible neck-type for replacing bulbs on side walls or at odd angles.

Explosion-Proof Lantern 251
U-C-Lite Mfg. Co. Featured in this illustrated bulletin is an explosion-proof hand lantern for use in hazardous locations. The 1500-foot beam lantern is UL listed for Class I, Group D hazards, as found in dry cleaning plants, paint spraying departments, chemical plants, etc.

FLOORING

Non-Skid Floor Treads 252
Reliance Steel Products Co. Illustrated brochure explains a line of abrasive-surfaced floor treads which combines the advantage of open flooring with non-skid safety. Detailed information includes specifications, recommendations, and a safe load table for ordering the metal treads.

Steel Floor Plates 253
The Camp Co., Inc. A line of heavy-duty steel floor plates, intended for aisles, loading docks, ramps, etc., is featured in this illustrated brochure. Also given are the few simple steps necessary to install the flooring which may be used as soon as the concrete binder has set.

GUARDS & ACCESSORIES

Vacuum Sheet Lifters 254
F. J. Littell Machine Co., Air-Vacuum Div. Illustrated catalog details a line of vacuum sheet lifters for metal, wood plastic, glass,

(Continued on the next page)

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February, 1957 **Please send me the following free data**

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Free Bulletins (Cont'd)

etc. Information includes specifications, recommended uses and prices for a variety of vacuum lifters to serve many industrial needs.

Transparent Safety Shield 255

The Dilley Mfg. Co. A magnetically-attached plastic safety shield for use on many different types of machinery. The transparent shield allows the operator to safely view the work being done. Size and price charts are included.

LADDERS & SCAFFOLDING

Custom-Built Work Platforms 256

The Ballymore Co. Custom-built steel work platforms are described in this informative, illustrated booklet. The platforms, built to the customer's specifications, all include regular safety features such as non-slip step and platform treads, wheel locks and guardrails.

Scaffold Lifeline Lock Device 257

Safety Tower Ladder Co. Described in this illustrated pamphlet is a lifeline locking device for swing and scaffold workers. The device locks automatically wherever it is on the rope, suspending the worker should he fall from his work position.

Maintenance Ladder 258

Safe-Lad Mfg. Co. Illustrated bulletin explains the features of a maintenance ladder that permits overhead maintenance to levels of 14 ft. Safe and compact, it is balanced to allow the worker to reach out over desks, shelves, etc.

Ladders & Scaffolds 259

The Patent Scaffolding Co., Inc. Scaffolds and ladders for construction, concrete shoring, plant maintenance and building repairs are explained in a 32-page, illustrated catalog. Erection procedure, technical data, uses and typical installations are given for the various types of scaffolds. Wood, aluminum and magnesium ladders are included.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
109A	Vehicle Safety Belts
110	Safety Gloves
111	Foot Protection
112	Anti-Slip Soles
113	Oil-Proof Soles
114	Welding Helmets
115	Welding Curtains
	FIRST AID AND PERSONAL HYGIENE
120	Protective Skin Cream
121	Skin Cleansers
122	Sanitary Drinking Facilities
123	Athlete's Foot Control
124	Salt Tablets
125	Noise Analysis & Control
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
128A	Rescue Kits
129	Stretchers & Litters
130	Throat Medication
131	Eye Wash Fountains
132	Hearing Tester
133	Disinfectant—Deodorants
	FIRE PROTECTION
141	Safety Cans
143	Safer Solvents
144	Degreasing Machines
146	Fire Blankets
148	Watchmen's Control Systems
149	Fire Resistant Hydraulic Fluids
	LIGHTING EQUIPMENT
150	Alarms & Warning Lights
152	Electrical Insulation Tester
153	Fluorescent Lamp Guards
154	Emergency Lights
	MAINTENANCE
160	Anti-Slip Floor & Mats
161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Cleaning Machines
164	Oil & Grease Absorbents
165	Paints
	LADDERS & HANDLING
170	Ladders
171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
174	Slings
175	Safety Hooks
176	Fork Truck Steering Aid
177	Acid Pumps
	GUARDS
178	Machine Guards
179	Power Press Feeders
180	Safety Tools
180A	Valve Operators
	EDUCATIONAL AIDS
181	Safety Signs
182	Safety Awards & Emblems
183	Employee Safety Guide
184	Aisle Marking Equipment
185	Bulletin Boards

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WHAT'S YOUR PROBLEM?

NATIONAL SAFETY CONGRESS

(Concluding report on the speeches at the 44th National Safety Congress. Continued from the January issue.)

It's time to quit "ambulance chasing" in the accident prevention field. An incorrect emphasis on injuries instead of accidents was pointed out by George W. Harper, associate professor of mechanical engineering at the University of Illinois. He said a confusion in terms has been responsible for many people investigating only injuries while thinking they're investigating accidents.

"Let's begin to think and act on accident prevention and stop being ambulance chasers," Harper told the delegates to the National Safety Congress. "Because if we stop the accidents, we will automatically eliminate the injuries."

Problem of Biomechanics

Man-made machines are not always made for the man. This problem of biomechanics and its relation to work accidents was explained in a paper co-authored by Theodore F. Hatch and Donald M. Ross, both members of the occupational health department of the School of Public Health, University of Pittsburgh.

He said one of the factors which may cause accidents in any job situation is the lack of a proper functional relationship between the man and his job. If a man must continually reach beyond his range of vision, for example, sooner or later he will have a hand or finger injury, he pointed out.

An experiment conducted at the University of Pittsburgh sought to establish relationships between the ability to exert a downward force in three different positions of the body, he said. Another study at the University of Michigan, Hatch said, analyzed the mechanical forces operating when the body exerts a pushing or pulling force with the hands.

Systematic analysis like this of man-machine relationships, he pointed out, will provide a basis for the design of machinery. By measuring a cross-section of the industrial population, standards can eventually be established which will allow man to work in positions and with muscular coordination most suited to him, he said.

Chemicals have to be handled with respect—not fear and indifference—to attain their full usefulness to mankind. Dr. John H. Foulger, director of medical research for DuPont at Wilmington, Del., developed the theme that chemicals can be safe, despite ancient fears perhaps derived from witchcraft or political and ceremonial homicides.

The increasing use of synthetic chemicals as new tools of industry, Dr. Foulger said, calls for a new attitude toward them. Fear, he said, is a response born of ignorance which leads to individual inefficiency in handling situations arising from it.

Tips on Safety Programs

A job can be like a suit of clothes—it may not fit as well after a few years. Because of this, a flexible method of job placement was urged by Dr. Robert L. Quimby. He said both jobs and people are subject to change, and urged that an effort be made to keep up with these changes. He suggested a rating system for matching physical capabilities of workers with physical demands of a job.

"The concept of comprehensive job placement is based on the fundamental idea of change and adaptation and upon the reality that there is no end to placement because the need for adjustment is always present," Dr. Quimby said.

You can't stop a person from having an accident by telling him, "Don't have an accident," any more than you can stop him from having a stomach ulcer by saying, "Don't have a stomach ulcer."

That was a psychiatrist's advice to the safety leaders. Dr. Harry Levinson, director of industrial mental health for the Menninger Foundation, Topeka, Kan., said that the aggressive drives in the unconscious mind are the real causes of many accidents.

"There is a sense of futility and frustration among some safety men because they can't understand why people should seemingly want to hurt themselves, why people don't listen to their warnings," he said.

Dr. Levinson told the safety engineers to concentrate on the human side of accident prevention. "In studying an accident the safety man can find out from the people involved how they felt at the time the accident occurred. He may learn something about the problems and the distractions which have diverted the person's attention from the hazard," he said.

Sensitivity to Change

"The safety man and supervisors must be sensitive to changes in day-to-day feeling which may predispose a worker to accidents," Dr. Levinson said. "It may be possible to develop a 'buddy system' much like that used in swimming safety so that each employee is alert to how his buddy feels that day. If his buddy is having a low mood, or is particularly worried or concerned, or in some other fashion is 'not himself' the employee may be especially alert to protecting him."

Both the job and the worker should be analyzed for maximum benefits from an employee placement program. Stanley J. Butcher, bureau of labor standards, U. S. Department of Labor, pointed out that assigning workers to certain jobs on the basis of their physical condition, experience and particular skills is not enough.

He said a program of job safety analysis would develop two specific requirements. The first would show what the machine or process required in the way of guards, lighting, material location and waste removal. The second would indicate what is required of the employee in the way of height,

Safety Maintenance SALUTES

A SAFETY IDEA

Ingenuity Solves Safety Problem

To prevent serious injury to personnel the Pueblo, Colorado, plant of the Colorado Fuel and Iron Corporation uses a steel cage to keep the steel rims of tires from flying when they are being inflated. Ordinarily the tire is merely rolled between the two rows of bars and the tire is safely inflated.

Mechanic Helper William Koen, however, found himself faced with the problem of inflating a 1400 x 20 tire at 90 lbs. pressure. The tire was too big to fit into the safety cage.

His ingenious solution was to put himself, instead of the tire, behind bars! Koen pulled the cage into a corner of the garage, stepped behind the bars, and inflated the tire without mishap, as shown in the picture below.

hearing, sight, skill, dexterity and attitude.

"It is my contention that job safety analysis is the base for all safety and production activity," Butcher said.

Where an organization is made up of units geographically spread out, a system of remote control is needed to make a safety program effective. The principle was explained by J. Lauren Shopen, safety director of Consumers Cooperative Association, Kansas City, Mo. One of the important results of a standardized program, he said, is that employees everywhere are made to feel like part of the whole organization.

"Many of the ideas which have been suggested today might be called 'remote control,'" Shopen said. "In a sense, it provides control over separated operations from a headquarters operation."

A worker is no different from his wife—he really spruces the place up when company's coming. The safety benefits of a plant open house for the public were described by Walter Lewis, works manager, Jones & Laughlin Steel Corp., Pittsburgh, Pa. The entire plant benefited from the extra burst of housekeeping the open house entailed, he said. Another extra benefit came from the special training in safety given employees acting as guides.

Paint and soap literally "cleaned up" absenteeism and a production bottleneck in a foundry. How this came about was told by I. M. Emery, president of the Massillon Steel Casting Co., Massillon, Ohio.

He said that in 1952, a department in the foundry became such a bottleneck that it threatened production in the entire plant. As a result of a suggestion, he said it was decided to paint and clean the smoky, dreary area. The black-smoked ceilings were cleaned and painted white, and the walls were painted two tones of green. Even the machinery, the cranes, the furnaces and welding booth were repainted appropriate colors, he said.

"The absentee rate in the department immediately dropped to below average for the plant," Emery said. "The bottleneck no longer existed. This naturally convinced us as to the value of a paint and clean-up campaign."

As a result, Emery said the entire foundry has been repainted. Walls are painted "eye-ease green," and windows are washed regularly. Some of the values of the campaign were improved worker morale, increased safety, less fatigue, improved flow of work because of better housekeeping and reduced dirt-corrosive effect on the structure.

For best inspection procedure, periodic changes of scenery are in order, according to C. Brooks Sossomon, superintendent of construction and maintenance, North American Rayon Corp., Elizabeth, Tenn. He said a safety organization functions best through inspections, but he suggested that inspectors occasionally exchange territories for routine inspections. A chemist from the laboratory, for example, could inspect the carpenter shop and a power house operator could check a textile operation.

"An outsider can often spot conditions conducive to accidents which we would overlook," Sossomon said.

A picture is worth 10,000 words only when it has certain story-telling elements in it. Those elements were discussed in a speech about photography in accident prevention by Earl R. Wallace, senior safety engineer, Eastman Kodak Co., Rochester, N. Y. Before a picture is taken certain fundamental questions should be asked: How big an area should be covered? What is the center of interest? What is to be shown by the picture? What is the picture to record? What will it be used for?

In the case of using photographs in safety work, he said, a conscious effort should be made in advance to determine the answers. For instance, different angles can be taken to show specific details. In addition, photographs may be taken to show how and why safety measures are needed in certain situations.

You can lead a man to safety but you can't make him swallow it. That was the opinion expressed by Walter M. Pahner, general supervisor of safety at the National Tube Div. of U. S. Steel, Lorain, Ohio.

He said strict enforcement of safety rules with disciplinary action where required was the method first used to minimize accidents when workers failed to lock-out power circuits during cleaning operations. This approach has now been supplemented by an educational effort. A demonstration panel is used to show employees the risks and results of failure to comply with safety instructions.

To be effective, safety must be "built into" an organization from top to bottom, not simply "tacked on" as an afterthought. Clayton G. Orcutt, supervisor of the Industrial Management Institute at the University of Wisconsin, said that years ago it was common practice for safety to be practically ignored until a man was injured. Then, some attempt would be made to tack on a safety effort.

"'Build it in—don't tack it on' is a philosophy to live by in a fast-moving world," Orcutt said. "It is a philosophy that will help us help others live happier, too."

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Pre-Employment Hearing Tests

Pre-employment hearing tests have been advocated as a means to help fix employer responsibility in states having hearing loss compensation laws. The recommendation was made by Robert A. Ewens, executive director, Wisconsin Manufacturers Association, at the 12th annual National Noise Abatement Symposium at the Hotel Sherman.

"A pre-employment audiometer examination is at least a starting point," he stated. "A person may be 20 percent defective in hearing when he is hired and 10 years later, due to either noisy environment or some other cause, may be 25 percent defective. His employer will know at least that he is not responsible for the first 20 percent," Evans explained.

Allis-Chalmers Manufacturing Co., he reported, long has made pre-hiring tests and finds that one quarter of job applicants have some hearing defect.

He said the Wisconsin Manufacturers Association for five years has advocated the use of audiometers in pre-employment physical examinations.

Accent the Abilities

Employers should recognize abilities rather than disabilities in hiring a man or woman for a job, John S. Coleman, President of the Chamber of Commerce of the United States, said in a statement keyed to National Employ the Physically Handicapped Week.

Physical fitness, he pointed out, is a relative thing and must be judged in relation to a specific job.

Mr. Coleman stated:

"Handicapped persons are being employed successfully in almost every type of job in American business today. It is heartwarming to note that employers are constantly expanding their use of this valuable addition to their workforce by identifying jobs in terms of physical requirements.

"We now know that handicapped workers do not want sympathy, special consideration or favoritism. They simply want the same respect as other human beings and the chance to compete on a just and equal basis with the able-bodied.

"Employing the physically handicapped is not a charity; it is just good business."

Data Sheet on Lead Oxides

The publication of a new safety data sheet on lead oxides (SD-64) was announced recently by the Manufacturing Chemists' Association, Inc.

The twelve-page booklet, part of a continuing series of safety data sheets, gives properties and essential information for the safe handling and storage of lead oxides, including material on shipping containers, storage, waste disposal, medical management and employee safety.

Copies of Chemical Safety Data Sheet SD-64, Lead Oxides, may be obtained from the Manufacturing Chemists' Association, Inc., 1625 Eye Street, Northwest, Washington 6, D. C., at 30 cents each.

Occupational Health Institute Moves

In January 1957, offices of the Occupational Health Institute, Inc., were moved from New York to Chicago, Illinois, in order to bring the Institute closer to its parent organization, the Industrial Medical Association. At the present time, the Institute is operating from 28 East Jackson Blvd., Chicago 4, Ill. Correspondence and inquiries should be marked for the attention of Edward C. Holmblad, M.D., Treasurer and Managing Director, Industrial Medical Association.

Duct Recommendations

Printed copies of Simplified Practice Recommendation R207-56, Pipes, Ducts, and Fittings for Warm-Air Heating and Air Conditioning Systems, are now available, the Commodity Standards Division, Office of Technical Services, U. S. Department of Commerce, has reported.

The recommendation, originally issued in 1945, consists of a simplified list of pipes, ducts, and fittings for warm-air heating and air conditioning for gravity, forced air, perimeter, and extended plenum systems, as well as sketches which are intended as an aid to identification of the items listed.

Printed copies of Simplified Practice Recommendation R207-56, may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 10 cents each. A discount of 25 percent will be allowed on orders of 100 or more copies.

Compensation Problems

The proceedings of the 1955 Convention of the International Association of Industrial Accident Boards and Commissions are now available from the U. S. Department of Labor's Bureau of Labor Standards as its Bulletin 186, Workmen's Compensation Problems. In addition to the committee reports and discussions, this bulletin includes many excellent papers by prominent workmen's compensation officials and outstanding medical men. Panels on disability evaluation, coal miners' pneumoconiosis, rehabilitation of injured workers, and atomic energy were among the topics considered at this convention. An up-to-date statement on the noise-in-industry problem is also included.

Copies may be obtained from: Bureau of Labor Standards, U. S. Department of Labor, Washington 25, D. C.; Department of Labor Offices in Boston, New York, Chicago, San Francisco, or Atlanta; and Superintendent of Documents, Government Printing Office, Washington 25, D. C. (Price 75 cents per copy.)

Hospital Operating Room Safety

A revised advisory pamphlet, "Safe Practice for Hospital Operating Rooms," NFPA No. 56, has been published by the National Fire Protection Association. This edition supersedes a 1954 edition and includes a number of changes to bring it up-to-date. One of the most significant of these is the requirement of uniform electrical receptacle and attachment plugs designed to eliminate the previous confusion involved in non-interchangeable electrical equipment and the danger that do-it-yourself electricians, confronted with the necessity of altering equipment to fit different electrical systems, would create a fire hazard.

There is also new material on differentiation between different types of rayon and other synthetic fabrics which must be strictly regulated in hospital operating rooms in order to eliminate the danger of static electricity.

Pamphlet No. 56, while purely advisory as far as the NFPA is concerned, has wide influence in governing the construction and operation of hospital operating rooms. It was developed by the NFPA Committee on Hospital Operating Rooms under the chairmanship of Roy Hudenburg of the Miners Memorial Hospital, Williamson, W. Va., and has been endorsed by the American College of Surgeons, The American Hospital Association, and the U. S. Veterans Administration.

Single copies of the 48-page pamphlet are available from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass., at 25 cents per copy.

Spanish Pirates Paid Compensation

Workmen's compensation is one of the oldest practices of society, according to the Industrial Commission of Ohio.

Spanish pirates of the 17th Century had an interesting system of compensating sailors who were injured during shipboard combat. If a voyage was successful, injured members received special payments before the booty was divided among all the men.

The compensation schedules ran as follows: Loss of right arm, 600 pieces of eight and six captives. Loss of left arm or right leg, 500 pieces of eight and five captives. Loss of an eye, 100 pieces of eight and one captive.

Injuries in the Soft-Drink Industry

Report No. 104, "Injuries and Injury rates in the Bottled Soft-Drink Industry," contains a detailed analysis of the frequency and severity of injuries experienced in the industry. Included in the report are analyses of injury rates by: 1. Product, 2. Plant, 3. Geographic areas and states, and 4. Occupations.

This report may be obtained free of charge by directing your request to the Bureau of Labor Statistics, U. S. Dept. of Labor, Washington 25, D. C.

the $100 Million Robber . . . . . DERMATITIS

A recent survey of 141 plants, covering 429,000 employees, has shed new light on industry's major health hazard—dermatitis, which has been estimated to cost industry at least $100 million annually.

The survey of major manufacturing industries revealed that 26% of the employees are exposed to potential skin irritants daily. Of these, at least 9% actually contract some form of skin trouble resulting in lost man hours.

Figure Should Be Higher

For the fifty-nine companies able to supply information on time lost from the job, these lost man hours totalled 18,219 in 1955. Analysis indicates that this figure should be much higher, since many companies did not know the extent of the dermatitis problem, nor the amount of lost time it incurred.

According to the survey, which was conducted by the Association of American Soap & Glycerine Producers, Inc., the best method of combating industrial dermatitis is through educating employees on how to recognize its causes and how to prevent skin disease before it occurs. Figures show that three-quarters of the sample rated such educational programs effective and indicated they were needed—while only a third already provided any employee education along this line. Other measures rated effective were: plant posters (64%); washroom decals (55%); and employee leaflets (44%).

Pointing up the basic value of employee education is the fact that almost all of the companies provide soaps and skin cleaners (96%) and towels (91%). More than two-thirds provide showers, protective clothing, and protective creams and ointments (mainly larger companies).

The survey shows that a large share of the dermatitis problem falls on small industry. In plants employing 500 and under, a greater percentage of employees (36% as opposed to the 26% average figure) actually face exposure to potential irritants. Yet of those plants, 84% did not provide employee educational programs on cleanliness. These figures indicate that smaller plants are perhaps less aware of the dermatitis problem.

Other facts revealed by the survey provide information useful in combatting the dermatitis health problem:

(Continued on page 46)

how can management improve employees' health?

by **E. S. WILLIS**
Consultant—Employee Benefits Policy and Plans
General Electric Company

What do better health and better industrial health conditions mean to industrial management? They mean, first, better employees who are able to devote fuller energies to the job. They mean lower costs because of fewer and shorter absences due to illness and injury. They mean that more of the wages of employees can be devoted to other areas of living. They even mean that some new industries have been developed which gave new jobs to thousands of people.

Industry has and continues to make progress in the fields of health of its employees directly in the plant and office and even extending by influence into the home. Enlightened employers are working aggressively to improve safety and health conditions surrounding persons who come to work for them. It is not an idle boast that my own company makes when it says its employees are 5 times safer at work than they are outside.

Millions of dollars have been spent on safety devices to protect workers from injury, and on the other working conditions affecting their health. We can provide a lot of controls in this field but physically we cannot go beyond the plant entrance. Unsafe driving on the highways, falling from the roof at home, pneumonia from walking in wet clothes and other unwise off-duty practices we cannot control entirely, although we do believe that good practices and safety education in the plant and office carry over into the house and highway.

Our own management has taken great strides in industrial medicine. Even better management support, professional personnel, clinical facilities and hygiene are constantly being made applicable primarily to injuries and occupational health but also to other health aspects of people who work with us.

Finally, and one of the most important areas of management interest is in the field of non-occupational health insurance. In this area—which is increasingly expensive, which affects individuals intimately and which has a vital and widespread social effect—managements have a varied viewpoint. In some cases, management acts as though it was a payment over which it has no say and so they have taken little interest, unfortunately, in the effects of health insurance. Where there is a lack of responsibility, the plans have taken the wrong direction to the detriment of individuals and of society as a whole. On the other hand, management increasingly is viewing non-occupational medical costs and payment for them including medical prepayment plans and their effects with even more responsibility.

***First*, medical insurance should provide protection against the cost of medical care on a broad front.** The insurance should provide (1) for both normal cases and for the catastrophies of high cost; and (2) for medical costs of all types in and out of the hospital.

Insurance is a means of spreading the risk over a larger group and a longer period of time. It should be used effectively to offset the unpredictable costs that would cause severe distress or disaster. However, it is not for the purpose of simply passing small bills from one person to another. It should, rather, apply to all the areas of **unpredictable** medical costs arising from injury or illness.

It is obvious that to the extent that these costs can be spread out through insurance, there is a beneficial

. . . is non-occupational health insurance the answer?

interest to the individual. He can utilize other portions of his income for preventive medicine, which is predictable, foreseeable and can be planned ahead and paid for at the time it is used. Further, if the health needs are protected on a broad front, the individual obviously will undergo treatment more promptly—with a resultant improved health level. If areas of medical expense are not covered—that is, if the risk is spread for only one or two areas such as only for hospital or for only hospital and surgery—then 30% to 50% of medical costs are left unprotected and the true value of insurance is lost and the individual is left without protection where he needs it. Probably he is bewildered by what has "hit" him when he thought he was protected.

***Second*, protection by insurance should be flexible.** It should be adaptable to the various situations that actually occur to individuals. For example, it should provide for complications. The variations in medical care or procedures or degree of specialization necessary in a particular case are important considerations. Then, in many companies, the variations due to geographical location must also be taken into account.

***Third*, insurance should provide aid only where it can be of real tangible help.** Individuals can afford to pay the small infrequent cost. Insurance can help in the case of heavier financial burden or where small individual costs occur so frequently that they begin to mount to serious proportions. To utilize insurance to meet the small infrequent cost is an outright misuse of insurance and yet in the programs of many organizations and in the programs of some companies there is specific provision for $3–$5–$7 bills. This is a waste—and the loss is for those with heavy medical costs. In plans of this kind the proper emphasis is completely reversed!

***Fourth*, normal medical expenses have a definite place in the normal living budget.** Medical expenses are not "happy" expenses and as a result the tendency is to omit them from family financial planning. And because they are "unhappy" the tendency is to exhibit great anguish for money spent in this field. There are great moans over the $10½ billion of medical costs in this country and cries that it ought to be a responsibility of the government. But I have yet to hear sad sympathy and pressure for government control or subsidy in the field of alcoholic beverages and tobacco where we spend $14½ billion or nearly 50% more. Nor are we seeking help in the field where $12 billion —20% higher than medical costs—is spent—because that money went for recreation. No one feels wronged when he enjoys recreation, or buys a car that depreciates rapidly or has a TV set delivered to his home—on the installment plan.

In fact, "Fortune" magazine recently pointed out that the median equity in savings deposits, bonds and stocks or other savings media is in the neighborhood of $850 while the median loan outstanding is $1000. And no one exhibits a sad countenance at this unbalanced position between personal assets and liabilities. If these "happier" costs can be handled on the family budget, so can medical costs.

***Fifth*, the individual should maintain a direct and continuing interest in the quality and cost of his medical care through direct participation.** The use of prepayment plans which are a form of installment buying are part of the picture. That is, a prepayment plan can spread the primary risk and payment on a regularized basis over a period. This is like the use of installment accounts which are unduly popular perhaps now. But we cannot let the opiate of installments completely overcome direct financial interest in medical costs. That is, a prepayment plan can provide the substantial base of medical expense protection, but it should never supersede direct participation at the same time.

This is necessary to provide a personal incentive to eliminate unneeded care but still not deter the individual from obtaining necessary care. This is a form of control of medical expense that increases individual responsibility and by so doing permits elimination of rigid controls that may unduly limit the protection afforded a person. To the extent that a plan provides benefits without individual participation or gives the impression that it does, then it is doing the field a disservice. Too much coverage leads only to abuse unless it is subject to the individual's responsible actions.

***Sixth*, the best *individual* medical care results from the private practice of medicine under which there is a free choice of doctors and service.** We recognize the importance of government in areas of general public health and in certain regulations of items affecting general public health. However, individual care is, we are firmly convinced, a private matter and government control could only subtract from—not add to—the quality of personal medical care. The rapid growth in quantity and the growing effectiveness of voluntary insurance plans will, we hope, ensure that there is less emphasis on legislative solution in this field.

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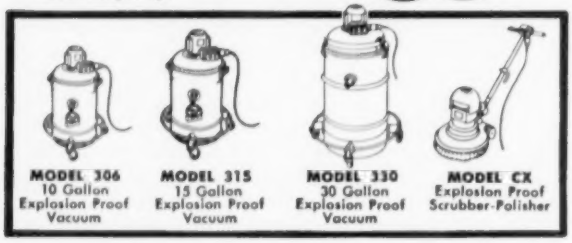

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and the full competition of the purveyors of protection.

I also foresee an even better future as more sound plans are developed and installed by enlightened management with the cooperation of more enlightened labor. Typically, my own Company installed a year ago a comprehensive plan incorporating the principles I have described—broadest coverage for normal and catastrophic expenses—from over $25 to $7500 in a year. The broad limits were possible through having limited initial amounts paid by employees as they do in auto insurance. Higher amounts are subject to the controls of co-insurance. This plan was negotiated with about 90 unions. Its flexibility and basic soundness have proved even better than we had hoped. Recent information indicates that over 600 similar type plans are in effect in industry.

This is a promising future and will more completely offset the more dangerous socialistic trends that are ever present in this field. Management is interested in providing the best possible personal care at costs consistent with sound social and business objectives. Effective medical payment plans and programs as well as other industrial health procedures conceived and operated on a practical responsible basis are evidence of this. The progressive work being done by management will augment more and more the fine work of those in the public health profession.

From an address presented at the American Public Health Association meeting.

Dermatitis

(from page 43)

Oils, greases; chemicals; solvents; acids, alkalis and cleaning agents—in that descending order—comprise nearly 60% of the potential irritants reported;

Production and processing departments were listed as work areas with highest irritation potential;

Over a third of the participants reported employees most likely to suffer skin irritations within 30 days on the job. This again points up the necessity for educating new employees in particular on proper preventive measures and clean-up techniques.

The survey was undertaken by the Association of American Soap & Glycerine Producers, Inc., as a part of its over-all, industry-wide educational program on cleanliness. The program began with the Association's publication of a booklet on "The Prevention of Occupational Skin Diseases," by Dr. Louis Schwartz, eminent industrial dermatologist and former member of the U. S. Public Health Service. Other projects in preparation include: a series of case history reports on plants which have dramatically solved dermatitis problems; plant posters, to be distributed in cooperation with the National Safety Council; cartoon strips, to be run in house organs; a foreman's talk, with accompanying slides and illustrations, on the nature and causes of industrial dermatitis.

Picture by courtesy of the Association of American Soap & Glycerine Producers, Inc.

Engineering Opens Doors
(from page 13)

report contained the phrase that "each member of management must accept, without reservation, the principle that accident prevention is an integral part of every job." As a result, the spotlight focused on specific superintendents by the shift safety report, convinced supervision that top management was serious when it said, "Safety was the inescapable responsibility of supervision."

The preface of the Goodyear safety policy sums up the company's position.

"The protection of industrial resources, both human and physical, from accidental injury and damage, is a prime responsibilty of management. It affects the economy of operations just as definitely and directly as do techniques of production, types of productive equipment and caliber of personnel employed. More important, losses arising from inadequate or ill-advised conservation practices not only adversely affect costs, they can completely destroy the entire human and physical resources of a company and do irreparable damage to its reputation. It is because of these facts—facts which have been tragically demonstrated time and again—that industrial management has turned to organized, continuing programs for protection or conservation of resources.

"This conservation function is not separate and distinct from the other functions of management such as research, acquisition of resources, utilization of resources and distribution of the product to consumers. The conservation function permeates all activities and must be an integral part of each. It is concerned with many facets of industrial activity such as engineering design, job methods, selection of employees and equipment, education of personnel and job training."

The safety men assigned to shifts were recalled the latter part of this summer. However, the men were withdrawn only after all units were in production and stable operation had been attained.

Many specific safety rules were adopted during the early part of the program. Many of those safety rules are based on regulations of the U. S. Atomic Energy Commission.

The motor vehicle program is a good example. There are over 300 vehicles—sedans, trucks, fork lifts, mobile cranes, jeeps, lumber carriers, etc.—in use on the plantsite. It was the responsibility of the safety department to set the standards for safe operation, give examinations, and issue licenses to employees.

The first and foremost part of the safety effort is accident prevention. Engineering is an integral part of this work.

Every effort is made to check equipment design and process facilities, as well as to study the jobs to set up safe methods to minimize the possibility of accidental injury to personnel and damage to the plant.

'An ounce of prevention is worth a pound of cure' may be trite, but

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(For details, use Key # A-17 on card on page 35)

it is as true today as when first uttered, the safety department feels.

The first element within GAT's safety effort is protection of its employees.

It is pointed out that hazards which are inherent in operations and which cannot be eliminated by practical means must be guarded against in such a manner as to minimize the chance for injury or damage.

Safety Equipment

Such hazards would include radioactivity, toxic materials, and electricity. These hazards account for a large part of the financial outlay for protective clothing such as gas masks, coveralls, safety glasses, safety shoes, and gloves. Prescription glasses are issued to employees who have need for them, and the shoes can be purchased by employees at a discount.

Education is another phase of the safety program. It is necessary that all employees be safety conscious. The best equipment, the safest job plan, and an up-to-date review of procedures aren't sufficient unless the people are safety conscious.

To this end the safety department carries on an extensive promotion campaign. The department uses the bulletin boards, the employee newspaper, displays, letters, meetings, and a monthly safety message on the company's safety calendar.

An important part of the promotion campaign is the reward program. The Atomic Energy Commission, in 1955, approved a plant-wide individual safety award program.

Goodyear Atomic employees, when they have worked 1½ million manhours without a disabling injury, become eligible for a safety award. When three million safe manhours are reached, the value of the award increases and if five million accident-free hours are worked the value of the award is increased again. No award is made until the record is broken. This permits merchandise awards of maximum value to be distributed.

Employees have earned two awards since the program was inaugurated. The last period of safe hours worked set a new safety record for a gaseous diffusion plant. That record, which was established between June 6, 1955, and February 7, 1956, was set as a result of working 3,678,843 manhours without a disabling injury.

This award program, it is felt, demonstrates two things to employees: one, that GAT management and AEC are interested sufficiently in the safety of employees to spend the money for the awards; and two, that for good safety results it takes the comined efforts of all employees.

The safety program starts with top level management—GAT's Operating Committee. The committee, which is composed of the general manager and the six division managers, makes the policy decisions. The direction and control of the safety program is vested in the executive safety committee, which consists of the Operating Committee and any additional members the general manager designates. The industrial engineering subdivision superintendent usually is a part of the executive committee.

Gains Momentum

The program gains momentum as it rolls down through the ranks. The safety route, from the executive safety committee, leads to the division safety committees. It then moves to the superintendents' level, on to the supervisors' level and to all employees.

In addition to the divisional safety committee, each sub division appoints a safety and housekeeping committee to make frequent inspections of the areas within its jurisdiction. Every area in the plant is covered—offices as well as the production area.

The employee newspaper, "The Wingfoot Clan," is used constantly by the safety department to promote Wise Owl Club and Turtle Club memberships, highway safety, and the many other safety programs.

Another major phase of promotion is aimed at the shifts. Highlight of the program is the annual presentation of a safety trophy to the shift that has the highest number of accident-free hours for the year.

A large part of the success of the safety program is due to the efforts of the shift organization. The four shifts, all with more than 200 men each, compete all year long for the shift safety trophy.

Emergency Drills

Shift safety also includes periodic emergency drills. All four shifts participate. Typical tests might include dropping a smoke bomb and pulling a fire alarm box lever.

"The men never know when or where these drills will be held," says J. R. Arndt, assistant manager of GAT's production division. "For that matter, when the alarm sounds, the men don't know whether it's a test or the real thing. They have no choice but to consider it an emergency."

The bulletin boards provide an outlet for the safety posters which play an important role in each month's safety theme.

The proverbial "skull sessions" to develop ideas for the posters are held each month by members of the industrial engineering subdivision. Ideas are put forth, torn apart, added to and subtracted from then put back together. This sometimes is repeated several times before the desired effects are produced.

The largest safety promotion sign at the plant is located beside the road at the entrance to the plant's major parking lot. It measures 10-feet high and 18-feet wide.

A 20-foot high barometer type indicator showing manhours is attached to the right side of the board. It is similar to the "Ring the Bell" device common at many carnivals. But GAT has altered that slogan to read: "Accident Prevention Rings the Bell."

Safety Slogans

Safety slogans, in 10-inch high letters, appear on the safety board. A blinking green light on the barometer indicates the number of man-hours worked without an accident. If the record is broken the light becomes red and is returned to the zero point. The safety slogan is removed and in its place is a report of the accident for all employees and visitors to see.

Three departments within the industrial engineering subdivision are responsible for phases of the

safety program. The largest of the group is safety and fire protection engineering. This department is responsible for the general plant safety and fire protection part of the program.

The health physics department is concerned with the radiation and selected industrial hygiene problems, and a comprehensive offsite monitoring program.

Safety on Boilers

One section of the mechanical inspection department is concerned with safety on boilers, pressure vessels, cranes, hoists, elevators, etc.

"In looking over our safety experience," Mr. Caterson said, "our biggest injury cause is still the human factor. For example, in 1955, 69% of all the plant injuries resulted from the unsafe acts of persons. (Failure to wear protective equipment, making safety devices inoperative—23%; assuming unsafe position, posture, grasp—19%; failure to use power tools or devices—12%; lapse of attention—9%).

"In contrast," he points out, "this same 69% statistic shows that none of these injuries resulted from unsafe conditions.

"We can talk, promote, hold meetings, and do all these other things, but all is wasted if the people doing the job don't do it safely."

Has Proved Success

The prominence of human-factor caused injuries might lead to the conclusion that a human relations background in safety professions would be preferable to a technical education. However, in a complicated manufacturing process such as is done at Goodyear Atomic, where engineers and scientists direct the plant operations, the safety engineer must be on equal educational terms to maintain respect and to win support for controversial technical recommendations. To date the engineering approach to hazard control has been a success.

Pictures by courtesy of Goodyear Atomic Corp.

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(For details, use Key # A-18 on card on page 35)

N. Y. Foundry Safety

New York State's 20,000-worker foundry business, which pays average annual workmen's compensation costs of $3 million, has been selected by the State Labor Department for launching an industry-by-industry series of cooperative safety programs employing the latest accident prevention techniques, according to Industrial Commissioner Isador Lubin. The foundry industry has the largest employment of any of the State's top 25 high-hazard industries.

Besides the workmen's compensation costs to management, workers in foundries sustain an average annual loss of more than $750,000 in wages because of accidents.

A task force of 60 safety service men, selected from the Department's regular personnel and given special training at New York University's Center for Safety Education and the State School of Industrial and Labor Relations at Cornell University, is visiting the State's more than 300 foundry establishments to enlist cooperation in the new approach to accident prevention. Studies of accidents in the industry and generally have shown that more than two-thirds of all compensable accidents could be attributed to circumstances outside the scope of regulation by law and the Industrial Code.

Enforcement and inspection will not be neglected, Commissioner Lubin said, but "we need to raise our sights and superimpose on the inspection system a realistic plan for promoting all aspects of worker safety."

"The accident frequency rate for the foundry industry," he said, "is better than double that for all manufacturing; triple that for the high-hazard chemical industry; and more than seven times as great as the rate for blast furnaces, steel works and rolling mills."

The relatively large number of small foundries without full-time safety programs is another reason for making the industry the first for a saturation program of regular visits.

Achievements and Awards

To prevent industrial accidents, invite employees to help make operations safer. That's the method used successfully by Vanadium Corporation of America in its plant at Niagara Falls, N. Y. In five years employees have made more than 350 safety suggestions. Reportable injuries have declined to 35 from 146 a year and lost-time injuries to 9 from 42.

Management of the plant, which produces ferroalloys in large volume, finds that no one safety-promotion method is wholly effective. It combines suggestion, contest, incentive and audience participation systems with the work of its safety engineers in a multi-phase attack on accidents.

The suggestion contest system is said to promote personal interest in safety and to encourage employee participation. In the seven contests held since 1953, the employees of this one plant have made 356 safety suggestions. The plant's eight-man Safety Committee has put 135 into effect. Makers of the suggestions have received awards ranging from useful articles to $100 savings bonds.

Experience shows that safety suggestions made by employees are intensely practical and often are directed to the protection of fellow-workers. In the semi-annual contest just ended, one electrician suggested an improvement for a crane catwalk. Another told how to eliminate a hazard at the machine shop entrance. A clerk recommended a safer location for a crusher control switch. A shipper described how to prevent damage to power cables on crane magnets and a mechanic devised a guard for furnace door openings.

This latest contest reflected progress made in eliminating major working hazards and resulted in the presentation of 18 safety awards. The variety of ideas received was such as to indicate that the capacity of employees for making practical safety suggestions is far from being exhausted.

• • •

For the third time, Automatic Transportation Company, Chicago manufacturer of electric-driven industrial trucks, has been honored with the National Safety Council's "Award of Merit". This is granted to an industrial plant accumulating, 1,000,000 man-hours without a "lost time" accident. Automatic's current total is more than 1,300,000. In 1955 Automatic won its second award with the record of 2,417,020 man hours.

• • •

The Pioneer-Central division of Bendix Aviation Corporation has been cited for its outstanding safety record by the Fidelity and Casualty Company of New York "for the distinguished service" of Pioneer-Central employees to the public and industry in the field of industrial safety.

Employees of the division incurred one disabling injury per every million work-hours. According to U. S. Bureau of Labor statistics the over-all figure for all industry is 10, and for the aircraft accessories industry it is 5.

The division promotes work-safety practices through a continuing educational program keyed to all levels of the divisional staff.

The plant is divided into three zones. Three inspectors in each zone make weekly inspections and report on safety violations to the plant safety committee. The 22-member committee meets and issues weekly reports to all supervisors, citing violations and corrections of violations previously reported. Supervisors are responsible for corrective action.

After each accident the safety director meets with the injured person and his foreman to review details of the incident.

In addition, reports on how lost-time accidents occur are circulated to all supervisory personnel. New safety posters also are displayed on plant bulletin boards each month.

Earlier this year the division was awarded a certificate of meritorious achievement from the Industrial Safety Association of Iowa for reducing its accident frequency rate in 1955 from its 1954 rate.

• • •

Miller Fluid Power Division of Flick-Reedy Corporation, Melrose Park, Ill., received a first place award in the light fabricating class plant-safety contest sponsored by the National Safety Council. The plaque was presented to Walter Zelenka, plant safety engineer. The company won the award for its outstanding plant safety record from July 1, 1955 to June 30, 1956. During the 12-month period, there were no lost-time accidents in nearly one million man-hours worked.

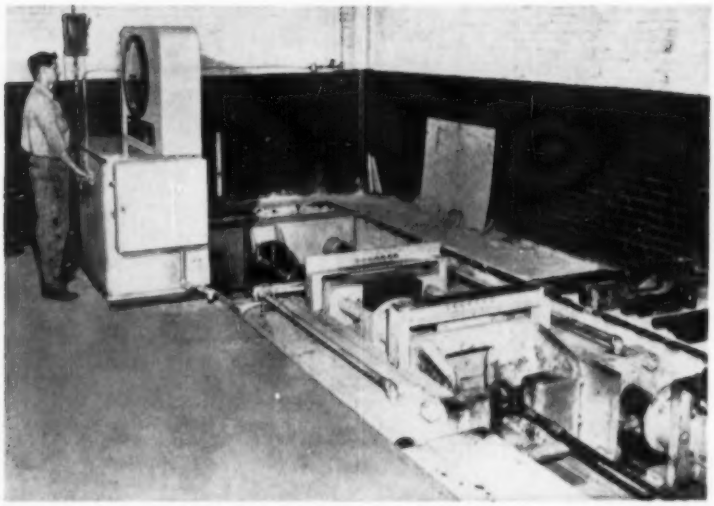
Frank Flick, president, cited the Miller plant safety committee and excellent cooperation on the part of all employees in preventing lost time accidents.

• • •

A safety record of two million man-hours without a single lost time accident was marked by employees of the Chemstrand Corporation Acrilan plant in Decatur, Alabama.

Dr. Kenneth Johnson, Acrilan plant manager said, "We should now set our sights on a three million man-hour record. By continuing teamwork we can reach that goal next spring."

The entire Chemstrand Corporation recently marked more than a year without a lost time accident among the more than 5,500 people in its varied manufacturing, research and administrative operations.



Giant new proof testing machine for wire rope products, with operator at the controls. One end of a boom cable can be seen under test in pit.

Giant Safety Tester for Wire Rope

For almost fifty years, until just about a year or so ago, there had been no major improvements in the strength characteristics of wire rope, one of industry's unheralded products. Tensile strengths of the most rugged specimens could not exceed 270,000 pounds per square inch. Today, this figure has been increased, and previous top standards exceeded by at least 15 percent.

Recently, after several years of intensive research, development and experimentation, the American Chain & Cable Company, Inc., stepped up the tensile strength of wire rope. In addition, with the introduction of the company's mechanical wire rope splice, it became necessary to develop new testing facilities. This was especially true since the wire rope ending splice was being constantly expanded and improved to utilize larger and larger diameter ropes. Up to recently both wire rope and wire rope slings were tested in a 250,000 pound proofloader, which became inadequate for full testing procedures as rope strengths improved and sling diameters rose.

Now, the situation has been remedied with the recent installation at the Wilkes-Barre, Pa. plant of a new universal hydraulic tester of horizontal design. The unit is one of the largest machines of its type to be used in private industry. Its capacity is 600,000 pounds, or over twice that of the older tester.

Besides its capacity of 300 tons (capable of subjecting specimens to a stress of 600,000 pounds), it is unique in that it incorporates a long test bed in which specimens over 60 feet in length can both be prooftested and breaktested. Other units of this capacity, whether in universities or in commercial testing laboratories, are usually set up to handle half this length or less.

The giant is used for determining the actual breaking strengths of very high strength wire rope products and for proofloading wire rope slings to determine their fitness for specified loads. Even the largest slings can be subjected to a prooftest of twice their safe working load before they leave the factory.

Picture by courtesy of American Chain & Cable Co., Inc.

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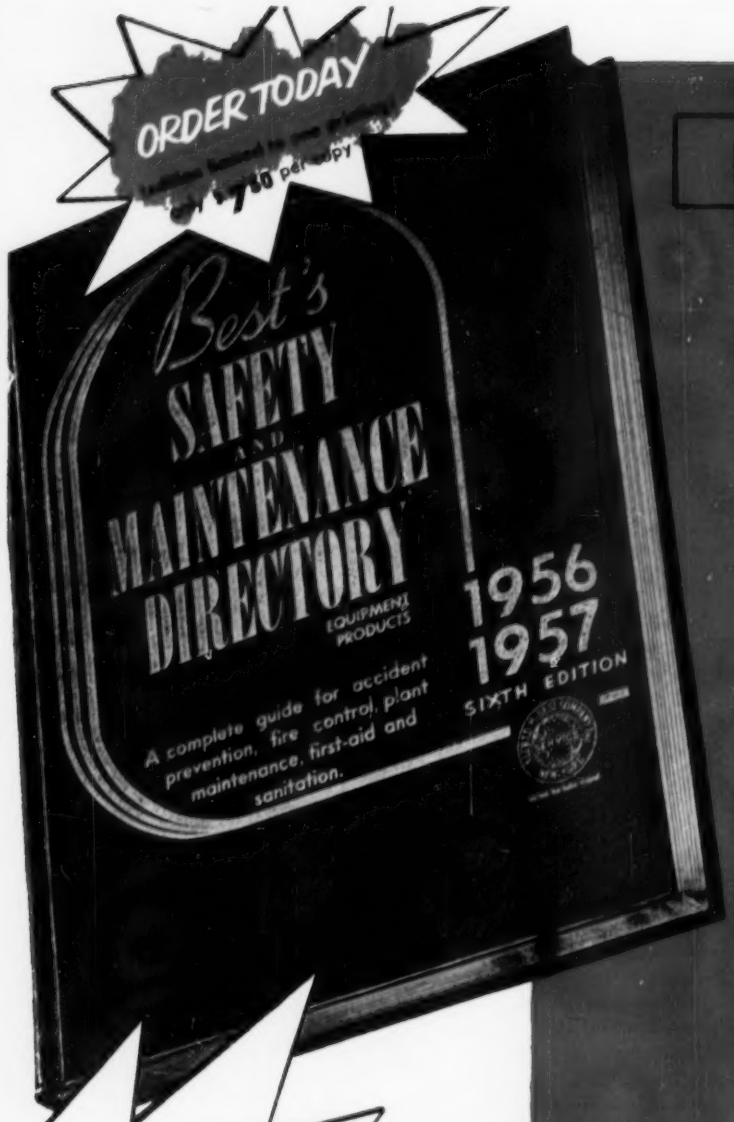

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(For details, use Key # A-20 on card on page 35)

THE FIRE FRONT

New Fire Code

The National Board of Fire Underwriters has announced publication of its newly-revised model Fire Prevention Code. Safety engineers and fire protection authorities have declared it to be one of the most important codes a city can adopt. They point out that it provides the necessary safeguards a community erty from the hazards of flammable must take to protect life and prop- and explosive substances and the many occupancy hazards found in every modern community.

For instance, the code provides for safeguards against fire hazards and explosion from storage, handling and use of flammable liquids and gases, hazardous chemicals and explosives, plastics, dusts and fumigants. It provides as well for safeguards against conditions hazardous to life and property in the use or occupancy of buildings or premises, such as garages, bowling alleys, junk yards and places of assembly.

The nation's press, the National Board of Fire Underwriters declared, daily reports death and destruction caused by fires and explosions. "These occurrences," it said, "are usually the result of a combination of circumstances, a common contributing factor being the improper handling and use of flammable and explosive commodities, thus showing the need for effective municipal control."

The National Board pointed out that municipal fire departments are in a position to render further valuable service to their community in fire prevention activities, but to be effective in this activity they need the backing of a suitable fire prevention code. "Few cities are in a position to prepare a code of this nature, so that a suitable model fire prevention code is the answer to their needs," the National Board declared.

Everett W. Fowler, director of NBFU's division of codes and standards, supervised the compilation of the code. He explained that it is a revision of the board's nationally-known "Fire Prevention Code" last published in 1953. Various editions of the code have been adopted in approximately 900 communities.

"This latest edition of the code," Mr. Fowler declared, "has been revised in many sections in order to bring it up to date and make it consistent with all the latest nationally recognized safety standards."

He pointed out that several changes and additions have been made, including a new section on potentially explosive chemicals, to meet the needs and requirements of municipalities. "It is the only nationally recommended model fire prevention code published in this country," he said, "and is usually enforced by fire prevention bureaus such as exist today within the fire departments of most cities."

In addition, Mr. Fowler pointed out that there is published in the new code book a suggested ordinance providing for the establishment of a bureau of fire prevention and for the adoption of the code by reference. "Adoption by reference," he explained, "is a means which has been used by many cities throughout the country in adopting the code."

Mr. Fowler urged every city which does not have a comprehesive, up-to-date fire prevention code, to adopt this new one. He suggested those that have an earlier edition of the code to replace it with the new one. "The uniformity which would result from such widespread use of the new code would benefit everyone concerned," he said.

Copies of the new Fire Prevention Code may be obtained free by persons having an interest in the code as well as by committees considering local codes. Copies will be supplied on request to the National Board at 85 John Street, New York 38, N. Y. If you live in the Middle West write to 222 West Adams Street, Chicago 6, Ill., and, if west of the Rockies, write to 465 California Street, San Francisco 4, Calif.

Fire Losses High

Estimated fire losses in the United States during November amounted to $80,481,000, the National Board of Fire Underwriters has reported. This loss represents a decrease of 0.8 percent from losses of $81,121,000 reported for October (1956) and an increase of 17 percent over losses of $68,784,000 reported for November, 1955.

Losses for the first 11 months of 1956 now total $892,805,000 an increase of 12.2 percent over the first 11 months of 1955, when they amounted to $796,006,000. These estimated losses include an allowance for uninsured and unreported losses.

Carbon Dioxide Extinguishing Systems

New standards for Carbon Dioxide Extinguishing Systems, NFPA No. 12, have been published by the National Fire Protection Association, it was announced by Robert S. Moulton, technical secretary of the Association. The new standards constitute a complete revision of previous material published by the NFPA and attempt to create performance standards rather than detailed engineering standards. Carbon dioxide extinguishing systems have long been used in

(Continued on page 56)

new classification for extinguishers

For many years three general classes of fires have been recognized:

Class "A" Fires—fires in ordinary combustibles such as wood, paper and cloth, where the cooling and quenching effect of water, or solutions containing large percentages of water, is most effective in reducing the temperature of the burning material below its ignition temperature.

Class "B" Fires—fires in flammable petroleum products or other flammable liquids, greases, etc., where the smothering or blanketing effect of an oxygen-excluding medium is most effective.

Class "C" Fires—fires involving electrical equipment where the use of a non-conducting extinguishing media is of first importance.

First aid fire extinguishers have been classified according to their ability to extinguish fires in the three categories and, to an extent, according to the size of fire which they might extinguish.

Former Method

For convenience in measuring the fire protection afforded by portable fire extinguishers a unit of fire protection was established. This unit was composed of from one to five hand portable fire extinguishing appliances, depending on the extinguishing value of the type and size of appliance comprising the unit. Extinguishers have customarily been marked in accordance with this standard.

An extinguisher having a rating of one unit of protection against Class "B" fires and suitable for use on small fires has been labeled "B-1". A smaller extinguisher, suitable for use on very small fires, might be only a half unit of protection and would be marked B-2, indicating two appliances are necessary to equal one unit of fire protection.

This classification system has been in use for many years. As the variety of extinguishers has increased, a need has developed for a broader classification system more nearly indicative of the extinguishing capabilities of the different types. Such a new system has now been adopted.

This new classification consists of a numeral followed by a letter. As before, the letter signifies the

Conversion Table

For old and new methods of extinguisher classification

Extinguisher Type and Size		Classifications Under Old Method	Approximate Classifications Under Present Method
Chemical Solution (soda-acid)	1¼ and 1½-gallon	A-2	1-A
	2½-gallon	A-1	2-A
	17-gallon	A	10-A
	33-gallon	A	20-A
Water	1½ and 1¾ gallon (pump or pressure)	A-2	1-A
	2½ to 5-gallon (pump or pressure)	A-1	2-A
	17-gallon (pressure)	A	10-A
	33-gallon (pressure)	A	20-A
	Six 10 quart pails and 25-gallon cask (minimum)	A-1	2-A
Loaded Stream	1-gallon	A-2,B-4	1-A
	1¾-gallon	A-1,B-2	2-A,½-B
	2½-gallon	A-1,B-2	2-A,½-B
	33-gallon	A	20-A
Foam			
	1¼-gallon	A-2,B-2	1-A,2-B
	1½-gallon	A-2,B-2	1-A,2-B
	2½-gallon	A-1,B-1	2-A,4-B
	5-gallon	A-1,B-1	4-A,6-B
	10-gallon	A,B	6-A,8-B
	17-gallon	A,B	10-A-10-B
	33-gallon	A,B	20-A,20-B
Vaporizing liquid (carbon tetrachloride base)	1, 1¼, 1½-quart (pump)	B-2,C-2	½-B,C
	1, 1½, 2, 2½-quart (pressure)	B-2,C-2	½-B,C
	1-gallon (pressure)	B-2,C-2	1-B,C
	3½-gallon (pressure)	B-2,C-2	1-B,C
Vaporizing liquid (chlorobromomethane)	1 and 1½-quart (pressure)	B-2,C-1	1-B,C
	1-gallon (pressure)	B-2,C-1	2-B,C
Carbon Dioxide	6 or less pounds of carbon dioxide	B-2,C-2	1-B,C
	7½ pounds of carbon dioxide	B-2,C-1	2-B,C
	10 pounds of carbon dioxide	B-2,C-1	4-B,C
	12 pounds of carbon dioxide	B-2,C-1	4-B,C
	15 and 18 pounds of carbon dioxide	B-1,C-1	4-B,C
	20 pounds of carbon dioxide	B-1,C-1	4-B,C
	25 and 26 pounds of carbon dioxide	B-1,C-1	6-B,C
	50 pounds of carbon dioxide	B-1,C-1	10-B,C
	75 pounds of carbon dioxide	B-1,C-1	12-B,C
	100 pounds of carbon dioxide	B,C	12-B,C

NOTE: Carbon dioxide extinguishers with metallic horns will not carry any C classification.

Dry Chemical	6¼ or less pounds of dry chemical	B-2,C-2	4-B,C
	7½ pounds of dry chemical	B-2,C-1	6-B,C
	10 pounds of dry chemical	B-1,C-1	8-B,C
	12 pounds of dry chemical	B-1,C-1	8-B,C
	15 pounds of dry chemical	B-1,C-1	8-B,C
	20 pounds of dry chemical	B-1,C-1	16-B,C
	30 pounds of dry chemical	B-1,C-1	20-B,C
	75 pounds of dry chemical	B,C	40-B,C
	150 pounds of dry chemical	B,C	40-B,C
	300 and 350 pounds of dry chemical	B,C	40-B,C
Wetting Agent	10 gallons	A,B	6-A
	20 gallons	A,B	12-A
	50 gallons	A,B	30-A

class of fire for which the extinguisher is suitable, while the numeral is indicative of the approximate relative fire extinguishing potential of the extinguisher. For example, a 4-A extinguisher can be expected to extinguish twice as much fire in ordinary combustibles as a 2-A appliance.

Under the new classification a standard 2½ gallon extinguisher has a 2-A rating. The extinguishing capabilities of these extinguishers are generally well known to firemen. One of these will normally extinguish 100 square feet fire area of freely burning wood.

In the case of Class "B" extinguishers the numeral preceding the letter is also an approximate indication of the square-foot area of deep-layer flammable liquid fire which an average operator can extinguish. For instance, a 10-B unit can be expected to extinguish 10 square feet of deep-layer flammable liquid fire when used by an average operator. A person proficient in the use of the particular extinguisher might be expected to extinguish an area twice as great.

In the case of Class "C" appliances, no numeral is used since Class "C" fires are essentially either Class "A" or Class "B" fires having additional problems of energized electrical wiring and equipment.

More detailed information on portable extinguishers will be found in NBFU Standard (No. 10) for the Installation, Maintenance and Use of First Aid Fire Appliances.

In the future, fire extinguishers labeled by the Underwriters' Laboratories, Inc., will be identified by the new classification system. Many extinguishers classified under the old procedure will, of course, remain in service. An accurate reclassification of extinguishers labeled under the old system of classification cannot be made except by actual fire test. However, an approximate conversion can be made as shown in the accompanying table on the preceding page.

Material by courtesy of the National Board of Fire Underwriters.

Carbon Dioxide

(from page 53)

special applications and are an excellent method of extinguishing fires through fixed installations.

The 62-page standard was developed by a representative technical committee under the chairmanship of Dr. Charles A. Goetz of Iowa State College, Ames, Iowa, and covers all phases of the subject including general information and requirements, total flooding systems, local application systems, special systems for extended discharge, hand hose line systems, stand-pipe systems and mobile supply. An extensive appendix provides details of personnel safety and other features of system design with detailed information for computing the amount of carbon dioxide required in any given installation.

Copies of this pamphlet may be obtained at $.75 per copy from the National Fire Protection Association, 60 Batterymarch Street, Boston, Mass.

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Selected stock—Heavy Duty hardware—with ¼" rods under steps. Strong and built for a long life of service.

Make it BABCOCK and lower your replacement cost.

Write for the Babcock Industrial Ladder folder, describing other Extension Ladders, Single Ladders and Step Ladders.

Underwriter's Approved

Be Sure • Be Safe • Buy Babcock

The W. W. BABCOCK CO., INC. • BATH, N. Y.

(For details, use Key # A-16 on card on page 35)

in-plant fire trucks

PACK A BIG WALLOP!

Why Have In-Plant Fire Trucks?

Small, self-propelled, mobile fire-fighter trucks provide:

1. Quick mobilization

of specialized fire-fighting equipment in the immediate vicinity of the fire.

2. Immediate availability

of equipment so that the fire-fighting personnel can accomplish their job quickly, efficiently, and with a maximum amount of safety.

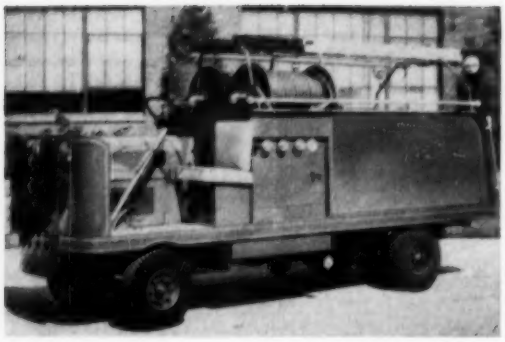
3. Municipal-Type

fire protection for immediate use inside the factory. (This is especially important when the plant is located in an outlying area where municipal fire department service is not readily available.)

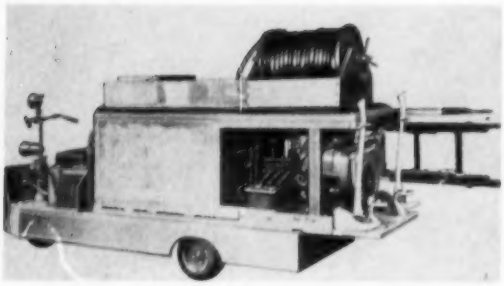
by **FRANK C. KLUIBER**
John Bean Division
Food Machinery & Chemical Corp.

Mobile equipment is becoming increasingly important in the over-all fire-protection requirements of an industrial plant. But, it's obvious that the equipment itself cannot fight fires. A good fire-protection system requires good equipment coupled with men properly trained in correct fire-fighting procedures and in the use and care of their equipment.

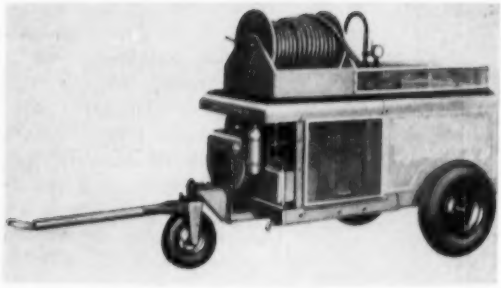
The design of in-plant units has made them the subject of some good-natured humor. Among the names I've heard them called are: Fire Bugs, Doodle Bugs, Mighty Midgets, and Mighty Mites. Some plant personnel express a desire to take them home as playthings for the youngsters. Don't be fooled by their appearance! These fire fighters are specifically designed to be compact, narrow, extremely maneuverable, and to pack a big wallop. They are a deadly instrument—for fires! They are a municipal fire truck in a small package. Three models are illustrated on the next page. Each has a specific job to do. They are typical of the equipment that is available.



This unit utilizes a high-pressure-fog system for smothering fires. It has the same pump, hose reel, gun, etc. used in municipal fire trucks. The only difference is in the size of the water tank and chassis. Unit is 48" wide, 135" long, and has wheel base of 76". Height, including top ladder mounting is 79". Weight about 5,000 pounds.



This is a smaller in-plant fire fighter truck utilizing a tricycle wheel arrangement. It has a width of 42", is 134" long, and carries 200 gallons of water. (Or, it can be equipped with a 100-gallon tank to permit carrying a 250-pound dry chemical unit.) It also uses the high-pressure-fog system.



Here is a trailer-mounted unit designed to be pulled by any shop truck. It has the same operating characteristics as the unit above. Over-all dimensions are: 35" wide, 96" long and tread width of 45".

The first step in the training of fire protection personnel is familarization. The quickest and easiest way to accomplish this is to have key personnel attend a fire-fighting school where the equipment is manufactured. These courses usually consist of a 2-day program covering the theory of fires; a discussion of the various types of fires; training in maintenance and operation of the equipment; and actual experience in fighting fires.

The men trained in this type school can then become the nucleus of the training program at your factory or plant. It is of utmost importance that all fire squad personnel be trained on the fire fighting characteristics of the in-plant equipment.

The best way to describe a proposed training program would be to outline a procedure for a company with three in-plant fire trucks. Start with a group of five—any more would cause confusion and would not give actual participation in the operation of the equipment.

First Hour: This should consist of instruction in the mechanics and operation of the fire truck, combined with actual driving of the unit inside the factory. This serves a two-fold purpose in that it familiarizes the personnel with the driving characteristics and operation of the equipment, and it helps them learn the various areas in the factory and the quickest and best way to get there during an emergency.

Second & Third Hours: This should be devoted to the techniques that will be used in operating the actual fire fighting equipment. In other words, developing team work. This helps each man learn the job he is to perform when going to, and when arriving at, the fire. If you use high pressure fog fire fighting equipment, it is desirable to have the men lay out their 1½ or 2½-inch supply lines from a standpipe direct to the fire truck. During this time, one or two of the other men are handling the fire guns and fighting the fire, using the 200 gallon water supply that

(Continued on the next page)

is carried by the truck. When the supply lines are attached, your firemen will have an unlimited supply of water, thereby insuring continuous fire fighting operation. This is an important phase of their training because time is an important factor when fighting fires.

Fourth & Fifth Hours: These should be spent on actual fires. Three fires that will develop confidence in the equipment and will give an all-around training in typical industrial fires would be the following setups:

1. Build a pit approximately 25 x 12 ft. and about 2 ft. deep. Fill it about ¾ full with water, and then add scrap oil, kerosene, or fuel, to fill the pit. This should be fired off with some gasoline.

2. The second fire would be a 5 x 5 x 8 ft. shanty filled with wax paper, rubber hose, or other scrap material soaked with scrap oil, and fired off with some gasoline or kerosene.

3. A wood pile fire using approximately 500 lbs. of all types and sizes, soaked with 8 to 10 gallons of kerosene. Let the fire burn for 5 to 10 minutes to get a deep burning, then start your training. It is unnecessary to put the fire out completely, primarily to permit rekindling so that at least a half a dozen fires could be obtained from the same pile, before becoming water-soaked or burned out.

It is important to have all fire protection personnel handle the equipment on these fires—work out the desirable procedures and methods and show what happens if not handled properly. When using high pressure fog, for instance, you will find that different nozzle settings work better for different types of fires. This should be illustrated and a definite pattern established so that all fire protection personnel will be thoroughly schooled and trained in the techniques. Here again the training accomplished at the manufacturer's school will be of invaluable assistance in training your fire brigade or fire protection personnel.

Sixth Hour: This should be devoted to proper fire truck maintenance. The best way is to set up a fire truck maintenance check sheet consisting of a daily, weekly, and monthly check requirement. This procedure will insure that your fire fighting equipment will always be in tip top shape and will give you optimum service when it is required. In addition, it is highly desirable that the fire fighting personnel and fire brigade develop a keen responsibility and consequent pride in keeping their equipment in first class shape. There is no question that after completing the first five phases of this training program and realizing the importance of this equipment in the fire protection system of their factory, that they will develop this pride and the subsequent care of the in-plant fire truck.

What Will It Cost?

Like everyone else, you and your management will be concerned with the over-all cost of this operation. To figure the cost let's assume a basic figure of $2.30 per man per hour. Then assuming that five men are taken as a group and that this operation can be accomplished in six hours, the total cost per man is $13.80 for a total cost of $69.00 for a team of five. This I am sure is a nominal fee for training that could save millions. The cost of materials for the actual fires is nothing since scrap materials are used. In fact, you probably will save your company money by burning this scrap rather than paying to have it hauled away. The cost for fire fighting materials is practically nothing. If you use a high pressure fog system, the only cost is for the water used. Other material, such as chemicals, will require a budget which again will be nominal, depending on the number of teams that will be put through this training program.

As a final comment, this type of equipment and training will provide a solid first line of defense; one designed to give control of any fire within a matter of seconds. Certainly this type of training at the cost that I have outlined should be of interest to both management and their fire protection supervision and personnel.

Pictures by courtesy of John Bean Division, Food Machinery & Chemical Corp.

Driver Training Courses

The 1957 schedule for the Truck Driver Training School of North Carolina State College has been announced by Edward W. Ruggles, director of the college's Extension Division.

The three-week classes will begin on the following dates: Feb. 25, March 25, April 22, May 20, June 24, July 29, Sept. 2, Sept. 30, Oct. 28, Nov. 25.

During the course, young men planning to enter the trucking industry learn basic facts, driving skills, preventive maintenance, and proper attitudes as a basis for their driving careers. The school, now in its eigth year of continuous operation, is the nation's first college-conducted school for truck drivers.

The school is under the direction of Russell M. Haynie, Jr. and Samuel F. Myers, is field and road instructor. Those interested in entering the school should apply to the Division of College Extension, Box 5125, N. C. State College, Raleigh.

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SAFETY ENGINEERING

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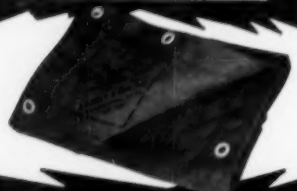
(Use Key # A-31 on Inquiry Card on page 28)

CONFINE YOUR DANGER!



USE Reeves FIRE CHIEF TREATED WELDING CURTAINS

- close woven canvas
- weighs 10 ounces per square yard before treatment
- impregnated with Hooper's Fire Chief treatment under their patent
- Underwriters Laboratory approved

The perfect protective curtain for all your dangerous work.

A. SMITH & SON, INC.
"IF IT'S MADE OF CANVAS, WE MAKE IT"
Green & Ridge Ave. Philadelphia 23, Pa.

(Use Key # A-21 on Inquiry Card on page 35)

For Safety
Guardi-Ann Hat

Combines utmost protection and style. Exclusive patented features found in no other hat.

Write for Free Sample or Order Direct from us

$15.00 dz.

CHIC MAID HAT MFG. CO., Inc.
630 HIGH STREET
BUFFALO 11, N. Y.

(Use Key # A-22 on Inquiry Card on page 35)

inside the trade

THE CORNELIUS COMPANY, Minneapolis, Minnesota, announces several changes in company sales personnel. *Robert S. Thompson* has been named General Sales Manager for the firm. In his new position he will direct sales activities of the company's three divisions: Portable Air Compressors, Aviation Products and the Beverage Equipment Division.

Fred Mohl has been made Sales Manager of Portable Compressors, used for recharging air breathing tanks.

HANNIFIN CORP., Des Plaines, Illinois, air and hydraulic equipment manufacturer, has divisionalized its sales operations, according to *Otto J. Maha*, Vice President, Sales and Engineering.

Announced as divisional sales managers are: *Robert G. Broberg*, for the air and hydraulic Power Cylinder Division; *William C. Thompson*, for the Air Valve Division; and *Arnold W. Blackshaw*, for the Machinery Division, air and hydraulic presses and portable hydraulic power tools.

Harold R. Suter was recently appointed Technical Director of the J. B. Ford Division of *WYANDOTTE CHEMICALS CORP.* He will coordinate the activities of Ford Division Research, Technical Service, Manufacturing and Engineering departments. He joined Wyandotte Chemicals in 1942 as a research chemist, advanced to Director of Application Research and now to his new position.

Clyde R. Dean, Jr., director of export sales of Yale Materials Handling Division, *THE YALE & TOWNE MFG. CO.* has been promoted to General Sales Manager. He has spent his entire business career, almost 20 years, in the materials handling industry, having been associated with domestic and foreign sales, service activities and sales promotion of industrial lift trucks and hoists. Dean joined the Yale sales organization in October 1954.

E. H. Hansen, President of *ELKHART BRASS MFG. CO., INC.*, Elkhart, Indiana, has announced the appointment of *R. L. Weir* as Vice President. Mr. Weir, who has been active in the fire extinguisher industry for many years, was formerly Vice President In Charge Of Sales of the General Detroit Corporation. Mr. Weir will be in charge of extinguisher sales and general sales promotion.

R. G. Ashbaugh, Jr. has recently been promoted from General Manager to Executive Vice President and General Manager. Mr. Ashbaugh has been with the firm since 1948 following his graduation from the University of Notre Dame.

Slotted cards which hold silver dollars and tell about the silver anniversary of *AMERICAN MAT CORP.* will be used during 1957 by that company's salesmen when making personal purchases from any business which might be a prospect for matting.

On a specified day, there will be released by each American Mat salesman a homing pigeon to which will be attached a bona fide order written that day. The order, carried by pigeon to the Toledo, Ohio sales headquarters from the farthest point will be filled at no cost to the customer.

D. W. Moor, President, in announcing these and other Anniversary promotions has bulletined salesmen about several bonuses and prize contests. To re-open doors of former customers, American Mat will also replace free the oldest mat in service. They will do this for each of the many types they sell.

Arthur Stahman

Henry J. Taylor, Chairman of the Board of *THE SILICONE PAPER COMPANY OF AMERICA, INC.*, announces the election of *Arthur Stahman* as President. Mr. Stahman has been Vice President since 1949 and has been associated with Mr. Taylor's business interests for 28 years. The company is the world's largest producer of Silicone-treated paper, with plants at Rochester, New York; Cleveland, Ohio; and Lee, Massachusetts.

AMPCO METAL, INC., has announced the appointment of two new Safety Tool distributors: Saginaw Welding Supply Co., 426 South Washington St., Saginaw,

Michigan; Central Rubber & Supply Co., Inc., 30 East Georgia St., Indianapolis 9, Indiana.

The new distributors will handle the complete line of spark-resisting hand tools.

J. A. Casey

THE GRANET CORP. of Framingham, Mass., has appointed Mr. *J. A. Casey* as Sales Manager, according to an announcement by *W. W. Clay*, President of the industrial glove manufacturing concern. Mr. Casey was formerly associated with the Edmont Mfg. Co. as Eastern Regional Sales Manager.

Dr. Alvin C. Purdy, President of Bull & Roberts, Inc., New York City, has been elected President of the American Council of Independent Laboratories, Inc. Results of the election were announced at the annual convention of the Council of seventy laboratories.

Cecil Shilstone, a partner of the Shilstone Testing Laboratory of New Orleans, La., was elected Vice President; *Dr. Roger W. Truesdail* of Los Angeles, Secretary; and *F. H. Wright* of New York, Treasurer. Dr. Truesdail is a past-President of the Council and is President of Truesdail Laboratories, Inc. F. H. Wright is Vice-President of Lucius Pitkin, Inc.

R. A. Willson has been appointed to the position of District Manager of the New York and New England territories for the *Wright Hoist Div., AMERICAN CHAIN & CABLE CO., INC.*, York, Pa., according to an announcement by *S. J. Woodworth*, Sales Manager. His headquarters will be at 230 Park Avenue, New York 17, N. Y. For the past four years he was District Manager of the Los Angeles office.

H. Thomas Hallowell, Jr., president, Standard Pressed Steel Co., Jenkintown, Pa., has been re-elected president of the American Standards Association. Announcement was made at the 38th Annual Meeting in New York.

Van H. Leichliter, vice president operations, American Steel & Wire Div., United States Steel Corp., was re-elected vice president of the Association; and *Arthur S. Johnson*, vice president, American Mutual Liability Insurance Co., Boston, was re-elected chairman of the Association's Standards Council which supervises the technical work on standard specifications, dimensions, methods of test and safety requirements in a broad range of activities. *T. E. Veltfort*, manager, Copper and Brass Research Association, who is the Council's vice chairman, was also renamed to his post.

NUCLEAR-CHICAGO CORPORATION is the new name of the Illinois corporation formerly known as Nuclear Instrument and Chemical Corporation. This change was ratified by the Annual Meeting of stockholders held recently.

William A. Cartwright has been appointed sales manager for the Detroit district of *THE TOKHEIM CORP.*, according to an announcement by *James M. Huguenard*, vice president and general sales manager of the Ft. Wayne, Indiana firm.

A graduate of Indiana University, Cartwright joined Tokheim in 1954, following 10 years of experience in other industries. He will operate out of the Tokheim district office located at 10628 Plymouth Road, Detroit.

PIONEER RUBBER COMPANY has appointed *James Alpine* of Ashtabula, Ohio, as a manufacturer's representative for the East Northcentral area, comprising Ohio, Michigan, West Virginia, Pittsburgh and surrounding area.

MULTI-CLEAN PRODUCTS, INC. has appointed *Harry T. Turner*, of Minneapolis, as the new factory sales representative in Southern California and Arizona, according to *E. C. Hesli*, General Sales Manager. Turner will maintain headquarters in Los Angeles.

A branch office in Detroit, Michigan has been recently opened by the *Fyr-Fyter Company's C-O-Two Systems Division* whose main office is located in Newark, New Jersey. Staffed by experienced engineers, the Detroit office will supply prompt and efficient service to the automotive industries, as well as the many other industries located in the area covering Michigan, Indiana, Ohio and Kentucky. The four other C-O-Two Systems Division branch offices are located in Atlanta, Chicago, Dallas and San Francisco.

KENNEDY

HEAD SNUGGERS

ESSENTIAL for outdoor workmen

Kennedy Head Snuggers, as liners under safety hard hats provide the necessary protection against cold, wintry blasts. Made of strong, sanforized materials completely washable. Hold their shape and color. An outstanding buy in winter liners.

TOPS IN WARMTH, COMFORT and SAFETY!

Write for complete details

Manufacturers and distributors of a complete line of safety clothing and equipment.

Write Dept. S-2 for information regarding your needs.

V. E. KENNEDY—INGALLS CO.

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MILWAUKEE 16, WISCONSIN

(Use Key # A-23 on Inquiry Card on page 35)

★ THE POSITIVE LADDER SAFETY DEVICE

It locks automatically—instantly—holds.

SAFETY DEVICE FOR LADDERS

Prevents death and injuries from falling.

Automatic: Positive. Will catch workman if he starts to fall even if unconscious.

Inexpensive. Easy to install. No upkeep. Clamps to any rung ladders, peg ladders, pole or frame. No welding or cutting.

Simple to operate: Requires no attention from climber.

Notched rail **hot dipped galvanized.** Entire equipment rust and corrosion proof.

In use throughout country and abroad for approx. 8 years.

Patented. Manufactured only by

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BURBANK, CALIFORNIA

★ ★ ★ ★ ★

(Use Key # A-24 on Inquiry Card on page 35)

WHAT'S THE LAW?

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

MEMBER . . . . . .
Master Superior Court, New Jersey
American Bar Ass'n, New Jersey Bar Ass'n,
Chairman, Committee on Workmen's
Compensation, New Jersey Bar Ass'n
National Federation Insurance Counsel
Past Commander, American Legion, Post 10,
. . . . . Newark, N. J.

COMMON-LAW ACTION—Suit by Employee of Subcontractor Against Other Subcontractors

In a common-law action brought by an employee of a subcontractor installing telephone equipment against an electrical subcontractor and a carpenter subcontractor for damages for injuries sustained due to the joint negligence of the subcontractors, the injured workman was properly granted a judgment in the amount of $18,000 where the evidence showed that the subcontractors violated the duty owed the injured workman to provide him with a reasonably safe place to work. The injured workman suffered a severe knee injury when he fell over an electric cord in a dimly lit corridor in the skyscraper under construction. The court ruled that all individual subcontractors engaged in a common enterprise owe to each other the duty of care required to business visitors. Business visitors are defined as "those who come upon the land for a purpose which is connected with their business which itself is directly or indirectly connected with any purpose, business or otherwise, for which the possessor used the land." The employer of the injured workman was on the premises furthering its work which was connected with the business purpose for which the two subcontractors were also there, namely, the building of the skyscraper. Affirmed.

Duffy v. Fischbach & Moore, Inc.; Pennsylvania Superior Court, Nos. 132 and 133, November 14, 1956.

COURSE OF EMPLOYMENT—Injured During Lunch Hour

The employee was on her lunch hour, had finished her lunch at her table, and then was injured when she slipped on a piece of paper while walking over to a barrel to dispose of the waste. The court held that the injury occurred within the course of her employment, ruling that it is unnecessary for the employee to be in the discharge of any specific duty incident to her employment in order to recover. Even though the employee was not being paid during her lunch hour, and the injury did not occur during hours of actual service, she could still recover. The court further ruled that the employer-employee relationship is not suspended during the lunch hour, where the employer expressly or by fair implication, invites his employees to remain on the premises in the immediate vicinity of the work. Affirmed.

Texas Employer's Insurance Ass'n. v. Davidson; Texas Court of Civil Appeals, Second Supreme Judicial District, No. 15, 761 October 26, 1956.

CORONARY OCCLUSION—Causal Connection

There was sufficient evidence to support an award for death benefits where the decedent, a mill worker, was required to push a 250-pound hand cart over an uneven wooden floor and had, on the day of his death, been working in an unventilated building in a 90-degree temperature. The claimant collapsed at work and died shortly thereafter. His doctor testified that he thought the death was caused by a coronary occlusion and that there was a causal connection between the employment and the death. The court held that death benefits were properly awarded in view of the medical testimony and considering the lack of any indication of any other possible cause of death. Affirmed.

Friss v. A. D. Juilliard; New York Supreme Court, Appellate Division, Third Judicial Department, No. 260–27, November 9, 1956.

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To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.

what's new for FEBRUARY

ZIPPERED ELECTRICAL TUBING

(Use Key # 752 on Inquiry Card on page 35)

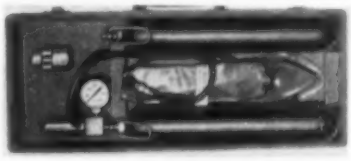
THE LACING and tying operation of electrical harness assemblies has been simplified through the use of a new zipper-style plastic tubing, Zippertubing, which has been made available by the W. A. Plummer Mfg. Co. Air Force approved, Zippertubing may be used to enclose, identify and protect multi-conductor wiring in the aircraft, electronic or electrical industries. The tubing offers many applications in addition to its primary use as a substitute method for lacing and tying, such as wiring ducts, wire marking (in short lengths), and as a replaceable cable jacket to protect expensive custom cables from abrasive wear. Custom cabling for experimental use can also be made up quickly.

The zipper pull-tab used to close the new tubing is detachable, and the tubing may be "unzipped" and re-used, or permanently sealed with a sealer provided by the manufacturer. When sealed, it will withstand a linear strength-test of 30 lbs. per inch. Available in nine colors, including black and clear plastic, it is made of polyvinylchloride plastics which meet military specifications MIL-I-631B and MIL-I-7444A, for use in aircraft and other types of military wiring. ID's are from ½" to 4½" in increments of ⅛". Wall thicknesses, .020" and .040". Available in continuous lengths from 20 to 1,000 feet. In the accompanying photograph, the military configuration is shown to contain an inside overlap to protect wires from contact with the zipper. It is also fungus resistant.

OXYGEN INHALATOR KIT

(Use Key # 753 on Inquiry Card on page 35)

A PORTABLE oxygen inhalator kit, light and compact so that it can be carried anywhere for instant, on-the-spot first aid use, has been introduced by the Davis Emergency Equipment Co., Inc. The kit, known as the Davis Oxygen Inhalator, contains complete equipment for the safe, effective



administration of oxygen, including two cylinders containing a half-hour's supply of oxygen. The apparatus is easy to operate, and can be used on the patient even while he is being carried on a stretcher, or in an ambulance.

Included in the kit are plastic facepiece and breathing bag; oxygen diluter; four feet of hose; a cylinder adapter that permits the small cylinders to be refilled from a large commercial cylinder, and also makes possible the attachment of the inhalator directly to a large cylinder; two cylinders of oxygen; and a pressure regulator approved by UL Laboratories and the U. S. Testing Laboratory. The unit, according to the company, is simple in operation so that even relatively inexperienced first aid personnel can use it with safety. With the regulator pre-set for normal breathing, it is only necessary to turn on the cylinder valve to begin oxygen therapy. Rate of flow can be adjusted to the patient's breathing, thus conserving the supply of oxygen.

PORTABLE EMERGENCY LIGHT

(Use Key # 754 on Inquiry Card on page 35)

A NEW portable emergency vehicle warning light for part-time ambulances, volunteer fire vehicles, road maintenance vehicles and law enforcement agencies has been developed by Federal Sign and Signal Corp. The new Fireball light attaches to any metal surface by magnets, has a 12-foot cord which plugs into the vehicle's cigarette lighter and is available in 6 or 12 volt models. Revolving 360 degrees, the unit's light can be seen for long distances and offers good signal warning in traffic.

The warning light is small and has a lower center of gravity, allowing minimum wind resistance and a broadened base area for maximum gripping characteristics. Attached to the top of an auto by its three powerful magnets, it is said to have passed all vibration tests of the Society of Automotive Engineers. A precision motor is used to rotate the light, which flashes at the rate of 75 times a minute. The efficient

reflector is of aluminum. In tests, a Fireball has been operated outdoors and in inclement weather for more than 5,000 hours, the equivalent of about 10 years normal usage, according to the manufacturer. It is available in red, clear, purple, blue, green and amber domes. A model for permanent mounting is also available.

EXPLOSION-PROOF FLOOR MACHINE

(Use Key # 755 on Inquiry Card on page 35)

FOR SAFE maintenance of floors in powder factories, atomic research plants, oil refineries and other hazardous industries, the Holt Manufacturing Co. has announced the improved, explosion-proof Commander all-purpose floor machine with 16 and 20-inch brushes. Wiring from motor to handle is eliminated by mounting the electric switch on the motor housing, but the start-and-stop control is retained on handle. The entire unit is sealed to prevent sparks and static that might ignite explosive gas, dust, fumes or vapors. Static eliminator wire in the brush, said to be an exclusive feature, prevents shock to the operator.

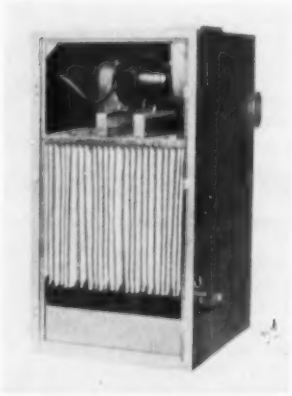
New, dual handles spread the load and eliminate the effects of torque, providing better control while eliminating operator fatigue. Gear unit is precision built and grease-sealed for life. Instant-change attachments enable the user to perform many operations other than polishing.

CHEMICAL EYESHIELD

(Use Key # 756 on Inquiry Card on page 35)

BY USING a vinyl hood 11¾ inches long with staggered ventilating baffles, greater ventilation than was normally possible with the old style round hooded vents has been achieved in a chemical eyeshield, according to the manufacturer, U. S. Safety Service Co. Known as the Airflow Chem, splashes, dust and other foreign particles are further screened out by a wrap-around, integrally-molded stainless steel mesh screen. In this manner, air is permited to flow freely, eliminating hazardous fogging. In the cross section shown in the accompanying photograph, the vinyl hood has been cut away to show the flow of air through the splash-proof ventilating baffles.

The comfortable eyeshield weighs approximately three oz., and features rolled edges that mold to the natural contours of different faces. It may also be worn over corrective eyewear. Offering high resistance to chemicals, the eyeshield is available in a bright yellow frame (which conforms to the ASA color code for acid operations) and a clear plastic for greater side vision. Special formula optical plastic lenses can be replaced without tools. The manufacturer states that federal specifications are met for optical quality as well as impact and piercing resistance.



SPACIOUS DUST COLLECTORS

(Use Key # 757 on Inquiry Card on page 35)

TORIT SERIES 80 cabinet cloth-filter dust collectors have been redesigned to permit over 2½ times more dust storage capacity, according to the manufacturer, the Torit Manufacturing Company. Three models—81, 83 and 84—are affected by the change, which will jump the capacity of each collector from ¾-cu. ft. to 2-cu. ft. The units are intended for jobs producing heavy quantities of dust, chips and shavings.

Each of the collectors has 150 sq. ft. of cloth filtering area, with filters made from fine-woven cotton, chemically treated for spark resistance, and each cabinet measures 49¼ x 28¼ x 28 inches. Internally mounted motors and fans move from 580 to 1100 c.f.m. of air through the filters at speeds of 5,000 to 8,000 f.p.m. All models in the series have a manual starter with overload protection, foot pedal for shaking filters clean, solid steel cabinets and inside exhaust (where regulations permit). Explosion-proof motors and other refinements are also available.

DERMATITIS CREAM

(Use Key # 758 on Inquiry Card on page 35)

A GREASELESS, non-irritating protective cream for the treatment of oil dermatitis, rashes, eczematoid, industrial dermatoses, fungi, etc., has been introduced by the Dermatar Co., Inc. Known as Carbothyosol Cream, it is said to combine the bacteriostatic effect of the sulfa drug with a soothing agent of the coal tar preparation. Its active ingredients include sulfathiazole, methyl salicylate, liquor carbonis detergens and menthol. The preparation, according to the manufacturer, stimulates denuded tissue and dilatory healing wounds.

To apply the cream, the affected area is first washed; the cream is then applied and massaged into the skin. In severe cases, a second layer is applied after the massage and bandaged. The treatment is repeated several times a day.

COMPACT SPRAY BOOTH

(Use Key # 759 on Inquiry Card on page 35)

THE NEW No. 2019 spray booth has been designed to fill the need for a small, compact, self-contained unit, and has been made available by Craftools, Inc. This spray booth occupies a minimum amount of floor space, 24 by 28 inches, and has a total height of 60 inches. It is constructed of steel panels on a tension-bolted adjustable frame and finished in gloss gray.

The unit is quiet running and equipped with a ball-bearing, totally enclosed 10 inch fan exhaust with self-closing butterfly damper. A glass wool filter unit in the booth catches the spray mist and residue, eliminating the necessity of outside connection. The filter is quickly replaceable. The spray booth is intended for airbrush, glaze spraying, flocking and other small spray operations done in the shop, school, laboratory or studio. An air filter and regulator is available as an accessory and can be attached to the unit. This filter and regulator permits control of the air pressure on the booth, and provides a condensation chamber for removing the water from the air line.

LABORATORY SOLVENT

(Use Key # 760 on Inquiry Card on page 35)

THE FISHER Scientific Company has introduced a high-safety, chlorinated solvent in a reagent grade for laboratory use. Known as Trichloroethane, it is said to be safe and efficient for use in dithizone tests for metals (such as bismuth, cadmium, cobalt, copper, lead, mercury, silver, thallium, tin, zinc, etc.).

According to the manufacturer it is one of the least toxic of all chlorinated solvents. It may also be used as a general purpose cold degreaser and will remove oils, waxes, greases and other contaminants and deposits from laboratory appliances, sample parts and experimental set-ups. The new solvent has an allowable vapor concentration of 500 parts per million, and it also lessens the danger of fire. All common metals, including aluminum, can be cleaned with the solvent with relative safety from corrosion.

LARGE CAPACITY CIGARETTE DISPOSALS

(Use Key # 761 on Inquiry Card on page 35)

STANDARD Industrial Products Co. has announced the addition of a large size cigarette disposal unit to their line. The unit is designed to reduce cleanup time in plants where SIPCO dunking stations receive more than average use by on-the-job smokers. The new canister is constructed of heavy cast aluminum and has a reinforced "fill level" bottom. Its capacity is approximately double that of the standard size SIPCO container. Present SIPCO dunking station users may replace their standard size canisters with the new size since the two are interchangeable.

The jumbo dunking stations are made in three models. Unit No. 1J (wt. 26 lbs.) is a floor type unit with heavy weighted base, upright, and features an eye-catching sign and jumbo canister. Unit No. 2J (wt. 6 lbs.), which is designed for mounting on walls, posts, columns or machines, consists of jumbo canister and sign. Unit No. 3J is the jumbo canister alone, with mounting bracket.

ACID-RESISTANT CLOTHING

(Use Key # 762 on Inquiry Card on page 35)

A NEW LINE of protective clothing has been announced by the Safety Clothing and Equipment Co. The clothing is made from nylon which has been thoroughly impregnated on both sides with a resin

compound. Calendering of the fabric is said to assure a good bond that defies peeling and provides longer wear and flexibility. The material is light in weight and offers protection against water, acids, caustics, chemicals, oil, grease, adhesives, etc., according to the company. It also provides effective protection against industrial dermatitis. Abrasion resistance is high, so that the fabric is difficult to tear.

Clothing made from the resin-impregnated nylon is suitable for use in industrial plants, chemical plants, refineries and in the construction and mining industries. It is available in a complete range of styles, including aprons, coats, jumper suits, jackets, pants, helmets, leggings, sleeves and spats. All standard sizes are available.

HYDRAULIC RESCUE KIT

(Use Key # 763 on Inquiry Card on page 35)

AN HYDRAULIC-powered kit has been introduced by H. K. Porter, Inc., for use in emergency rescue operations involving fire, vehicle accidents, cave-ins, etc. According to the manufacturer, the P-F Hydraulic Rescue Kit eliminates the need for prybars, hacksaws, mechanical jacks and cutting torches, freeing victims safely and quickly.

The portable kit is fitted in a metal case and includes a canvas case for optional use. It is independent of outside power sources and can safely be used near explosive fumes. The remote-control, self-retracting jack, which is equipped with a 7 ft. hose enabling the operator to work at a safe distance, delivers 7½ tons of power. The specially designed attachments may be assembled quickly, providing a number of combinations for various rescue requirements. Other features include a compact spreader offering a 16-

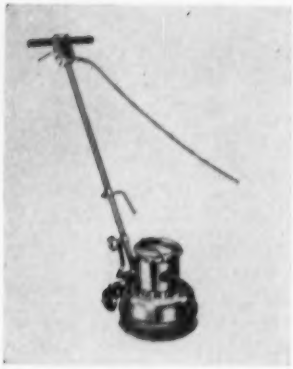
inch spread, the hydralic ram which pinpoints the 7½ ton pressure where needed, a chain pull unit, and non-skid pushing bases. The various attachments make it possible for the rescue kit to push, pull, lift, press and spread in almost any position and under almost any conditions.

RADIOACTIVE GAS SIGNALS & MARKERS

(Use Key # 764 on Inquiry Card on page 35)

SAID TO BE the first to utilize the long-lived radioactive gas, Krypton 85, these high-brightness safety signals and markers have been introduced by the United States Radium Corp. Designed especially for installations where power and maintenance are limited, they employ treated phosphor crystals excited to luminescence by Kr 85. Radiation levels are well below established tolerances. The units are available in a variety of shapes, sizes and brightnesses, and suited for use in mining, transportation, marine and heavy industrial fields, as well as for low-level civil defense marking or other applications where little power is available. The Isolamp, illustrated herein, is a prototype radioisotope-activated light and has a useful life expectancy of more than 10 years.

According to the manufacturer, the devices are visible at distances in excess of 500 yards, and are adaptable to a wide range of signal, directional and marking systems. Colors available include blue, green, yellow, pale orange and orange-red. Sources are enclosed in hermetically-sealed transparent capsules which are weather- and tamper-proof, requiring no maintenance from the day of installation.



FLOOR MAINTAINER

(Use Key # 765 on Inquiry Card on page 35)

A NEW high-powered floor maintainer that scrubs, waxes, polishes, steel wools, buffs and shampoos has been introduced by Clarke Sanding Machine Co. The Clarke FM-11 floor maintainer has a brush diameter of 11 inches, a specially designed ½ hp constant duty motor and interchangeable attachments for all six maintenance jobs including a special nylon-filled brush for shampooing rugs and carpets.

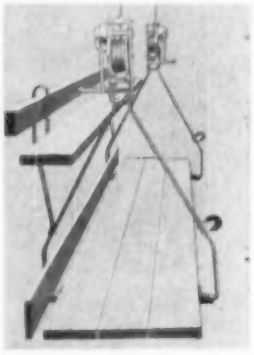
According to the manufacturer, the motor of the FM-11 provides approximately 30 percent more power than many other ½ hp maintainer motors, and with no increase in weight or size. The high-power motor has lifetime lubricated ball bearings, an exceptionally high starting torque, and runs at rated brush speed on any 15 amp. circuit. The unit's precision matched gears, including an aircraft quality synthane silencing gear, assure smooth, quiet operation. Other features include an adjustable handle that can be locked in any position on a 90 degree arc, flip-up wheels that automatically retract when weight of maintainer is shifted from wheels to brush, and a completely automatic safety switch that starts and stops the maintainer with a finger-touch.

COMBINATION SIGN & SIGNAL

(Use Key # 766 on Inquiry Card on page 35)

A PORTABLE, combination sign and signal unit for outdoor use has been made available by the New Castle Battery Mfg. Co. The Champion safety signal features two to four lights that alternately beam in two directions and is obtainable with a time limit switch to shut off the lights at the end of any period up to 120 minutes. Depending upon the model, the lights may be mounted on the same or different planes, as well as heights. The wheeled unit is easily moved about, because of its light weight. A six volt battery is supplied to power the lights. Its electrical circuit can be locked.

The sign is porcelain-enameled and conforms in size and shape to state highway specifications. It is said to withstand constant use under poor weather conditions. The signs are available in a choice of messages.



LIGHT-DUTY SWING STAGE

(Use Key # 767 on Inquiry Card on page 35)

A LIGHT-DUTY swing stage, said to offer convenience and added safety, has been announced by Safeway Steel Products, Inc. Known as the Budget Swing, it can be used for a wide range of light-duty work including tuck pointing of masonry, wall cleaning, window washing, painting, etc. The stage can be raised or lowered at speeds to 20 ft. per min., and features three automatic fall prevention devices built into the winch. In addition, safety is provided by a guard rail, toe board and material platform.

The swing stage is comprised of two winches with removable stirrup and guard rail attachment. It is made ready for use by mounting three 10-inch planks for the work platform, a toe board, a material platform and a guard rail. Each winch is provided with 75 ft. of steel wire rope. Working capacity, including a safety factor of 4 to 1, is 700 lbs. The stage is listed by Underwriters Laboratories, Inc.

INDUSTRIAL PERISCOPES

(Use Key # 768 on Inquiry Card on page 35)

INDUSTRIAL periscopes, precision-built instruments that can be used in many industries for the remote observation of inaccessible places and the study of hazardous processes from a safe viewing distance, have been introduced by the Lenox Instrument Co. The instruments, it is said, are designed to go through walls and contaminated or explosive atmospheres, around corners and under or over obstructions to permit the study and control of industrial work from a remote point. The units are complete optical systems consisting of a series of lenses and prisms usually encased in a tubular unit containing various angular bends. They may vary in size from that of a short quill to over 60 feet in length, and provision for high pressures, temperatures and harmful radiation can be furnished.

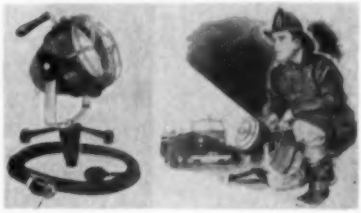
The periscopes are claimed to fill a need in industry in that they remove the problems of inaccessibility and danger. Available in various models for specific applications, the units can be used in munitions factories, aircraft plants, chemical, nuclear and many other industries. Where necessary, models can be obtained featuring built-in illumination. Periscopes for use under water are also available.

POWERFUL FLOODLIGHT

(Use Key # 769 on Inquiry Card on page 35)

A NEW POWER beam floodlight announced by Stonco Electric Products Co. is reported to be the highest powered portable unit ever made for its size and weight. Producing 121,500 candlepower with only a 500 watt rating, the floodlight weighs 13 pounds complete with 2000-hour power spot or flood, 25 ft. detachable 3-conductor cord with plug and adapter, and protective lens with guard.

Construction is heavy duty, rustproof, corrosion-proof, cast aluminum throughout,



with internal and external cooling ribs for rapid heat dissipation. In the standard model for general use, the finish is natural aluminum. In the "Fire Chief" portable illustrated here, and intended for plant, airport or municipal fire department use, finish is brilliant fire red. The unit is available as portable or truck mount with heavy mounting plate instead of tripod. Both types are fully adjustable in any direction and are equipped with cast aluminum positioning knobs to lock focus in any direction.

SAFETY GOGGLE

(Use Key # 770 on Inquiry Card on page 35)

THIS NEW single eye-piece goggle, introduced by The Fibre-Metal Products Company, improves the view of work being done with its "picture window" while affording safety and comfort to the worker. Trade marked Solo Goggle, it is designed to use standard 2 x 4¼ inch filter lenses and cover glass and to fit over even the largest, latest type safety or personal prescription glasses. The

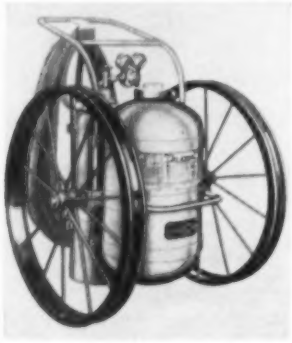
lenses are easily replaceable and are held by a single spring arrangement. No tools are required

The goggle is available with head rest for pressureless close-to-face fit or for ventilated off-the-face wear. The single center-linkage has easy friction adjustment (the same linkage may be fitted to safety caps). The sweatband-fitted headband has wide range head adjustments to fit any head size easily and positively. The goggle is also available with an adjustable elastic headband.

WHEELED EXTINGUISHERS

(Use Key # 771 on Inquiry Card on page 35)

THE FYR-FYTER CO. has announced the addition of 75- and 150-lb. Dry Chemical Engines to its line of fire protection equipment. Designed in answer to industries' requests for a high capacity, mobile extinguisher unit to combat Class "B" fires, the new models provide one of the most



effective means of killing big flammable-liquid blazes. Intended for use in oil refineries, volatile liquid storage depots, paint and varnish manufacturing units, etc., the dry chemical units are compact, maneuverable, and simple to operate and maintain.

Underwriters' and Factory Mutual Laboratories approved, the wheeled engines utilize pressurized nitrogen to expel the smothering dry chemical powder through an adjustable nozzle which can be set for long range or "fan" stream. The 150-lb. model gives approved protection for 80 sq. feet of flammable-liquid hazards such as open dip tanks, quench tanks and solvent vats, according to the company.

NEW EMERGENCY LIGHT

(Use Key # 772 on Inquiry Card on page 35)

THE LATEST model in the Watchmaster series of automatic emergency lights has been announced by the Automatalite Division of Carpenter Mfg. Co. The new unit features floodlight type, sealed-beam lampheads with strong center beam to light long passageways or to pinpoint exits and critical controls. Another feature is the addition of a device that almost totally prevents the loss of water from the batteries by trapping and re-converting into water the hydrogen and oxygen given off in charging. The same device prevents messy corrosion around battery terminals and guards against explosion hazards from free hydrogen gas.

The manufacturer claims added life to battery of from 50 to 100 percent, and that

water need be added only once each year or two. A timing mechanism guards against overcharging of the battery on "high charge". As in previous models, the units plug into standard outlets and will automatically light up when current fails and other lights go out.

SQUARE SHAPE SAFETY SPECTACLES

(Use Key # 773 on Inquiry Card on page 35)

NEW STYLING, comfort and strength are said to be prime features of a "square shape" metal frame for safety glasses. According to the manufacturer, the Sellstrom Mfg. Co., the new frame offers greater eye protection as well as conventional spectacle design.

The frame, a member of the company's "750 Series," provides an improved nose bridge and rocker arm pads of high strength and impact-resistance. A non-peeling, vinyl-dipped temple coating is used and the cable temple style is flexible for ear-distance adjustments. (A spatula temple with plastic tips is also available in the frame series.) A wide selection of lenses and lens colors is supplied in the series along with three standard eye sizes and four bridge sizes.

FIRE RETARDANT COATING

(Use Key # 774 on Inquiry Card on page 35)

A NEW method of fireproofing structural steel members and steel floor units in building construction was recently tested and rated by the Underwriters' Laboratories, Inc. In addition to protection from fire, this method is said to provide for the protection of structural steel members against corrosion. The fireproofing medium, known as Sprayed "Limpet" Asbestos, has been made available by the Keasbey & Mattison Co. Steel members and flooring to be protected against fire are sprayed with a coating in which pure asbestos fibers are combined with an inorganic hydraulic-setting bonding material. The thickness of the coating on different members is varied as required to provide the desired rating in hours of fire protection.

In tests, two steel columns, each sprayed with a different thickness of the fireproofing medium, were subjected to a flame temperature of 2000 degrees Fahrenheit. The column coated with a two-inch thickness was rated at three hours protection against the passage of flame and dangerous heat transmission. The column coated with a one and one-half inch thickness produced a two-hour rating. A ceiling assembly was also exposed to a flame temperature of 2000 degrees Fahrenheit and after four hours the upper or unexposed floor surface temperature averaged only 217 degrees Fahrenheit. This was well below the average limiting temperature of 333 degrees Fahrenheit for such construction. The ceiling was coated with a one and one-quarter inch layer of the fireproofing medium. One of the supporting ceiling beams was encased with metal lath and coated with a one and one-half inch layer. This beam was rated at four hours protection. The second supporting ceiling beam which was coated directly with a two-inch layer of the fireproofing medium received a rating of three hours protection.

Spray-applied, the fibers leave the nozzle of the gun in a dry and well-opened state. They combine in mid-air with a fine water spray, also ejected from jets in the spray gun, and adhere tightly when they reach the surface. This method of application produces a continuous felt-like coating which is very light in weight. Since close contact with the steel surfaces is obtained in this manner, condensed moisture can not collect and cause corrosion, the company states.

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NEW! Flexible Plastic Goggles

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New CESCO No. 565
Flexible Plastic
Goggles

Extremely lightweight and durable—molded from soft vinyl material—these #565 CESCO Flexible Plastic Goggles protect workers from dust, splashing liquids and moderate impact from any direction.

Comfortable to wear • They are perfectly contoured and fit snugly all around. Small perforations, angled away from the eyes, give adequate ventilation.

Give complete protection • They leave no open spaces. Fit perfectly over most personal glasses.

Permit full view • Wide window lenses are curved rather than flat to allow best vision.

Available in two styles • No. 565C (with clear plastic lens) or No. 565G (with green plastic lens).

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***ASK** your CESCO Safety Equipment Distributor to show you this new goggle and the many other goggles in the complete CESCO line*

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(For details, use Key # A-25 on card on page 35)

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first aid for throat irritations

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THANTIS® Lozenges contain no antibiotic; they produce no unpleasant by-reactions in the mouth.

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Twenty-seven years' extensive clinical and lay use has proved the safety and effectiveness of this popular product.

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